

Relational Database Of Covid-19 Vaccination Data For Effective Data Analysis





United International University

REPORT

COURSE CODE: INT 4399

TOPIC: Relational Database Of Covid-19 Vaccination Data For Effective Data Analysis.

Submitted To:

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Acknowledgment

First, I am thankful to Almighty who gave me strength & made me able to complete this project paper in timeframe. And at the time, thanks to all community who help me a lot in collecting data. Without adulteration of these favors, probably I cannot finish my project paper within the timeframe, so I would like to express thanks to all of you.

I express my gratitude to my respected course teacher, Ahmed Imran Kabir for his valuable edification, inspiration, guidance, supervision & also his help in properly completing my project paper. Finally, I also thank them who helped me regarding the collection of statistical information by providing me with all kinds of data & information.

Abstract:

The relational database management system is one type of data processing application that is used for commercial purposes. This database allows primary data, for this reason, it is worker friendly & If we compare it to other data models, then we realize that it is easy for the programmer's jobs. If we follow all instructions in this report, then we easily learn how to create a relational database by using covid data in the relational model. By using these relational databases indexes to find records quickly based on search criteria. If anyone uses this type of relational database, then they can easily store a large number of data within a short time. This database structurally stores all data for that causes, when anyone wants to find any data then they can easily identify that particular data. This type of database safety ensures for all type of data stored, and protects unknown access in the database. When data are shared by users or any unauthorized source, this system provides unmoral results show.

In the DBMS every table is interconnected with each other for that causes when any data is updated or modified in one table and if it is related to another table then it is automatically updated in the report section. Most database administrators like to work in this type of database because in this database there are no programming languages. In the general database, administrators update or modify data. If any users can follow some step, then they can easily update or modify data. But it requires logical knowledge on the physical level. It allows us to quickly store cabalistic information and ensures proper safety important data. This type of relational database also helps for real-time decision-making. By the time this type of database uses multiple business purposes.

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Letter of Transmittal

04- 03-2022

To

Ahmed Imran Kabir

Lecturer of, SoBE

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Dhaka-1212

Subject: Project paper on “Relational Database Of Covid-19 Vaccination Data For Effective Data Analysis”.

Dear Sir,

It is my pleasure to present my project paper on “Relational Database Of Covid-19 Vaccination Data For Effective Data Analysis”, which we are assigned me to complete my project.

In writing this project paper, I follow the instructions that you give me in the counseling hour. This project papers all information on my own, though some information and references have been taken from different sources to facilitate my project paper. It helps to know how to create relational database of covid-19 vaccination data for effective data analysis. In this report, I try to give all relative information. This report helps other people to gain knowledge about, how to create relational database of covid-19 vaccination data for effective data analysis.

Finally, it would be kind of you if you accepted my project paper.

Sincerely Yours,



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1 Introduction:

A relational database management system is allowed to create, update or modify, & the database administrator defines different types of relationship for easy access in database administrators side and user side. It means that every table of data, views, and indexes are logical data structures. Database administrators can manage physical data storage without affecting access to that data as a logical structure of the database. It makes easy to store information and find information, and it also helps easy to organize data & make business decisions more efficiently. Over the time this type of Database that's helps user to store them effectively and easily categorize the data into different categories within a specific time. When I create this database, we need to input data into different categories. Update version of relational databases are faster, excellent, stronger, & more comfortable to work day by day. But in some courses database administrator face difficulty, when their need to non-stop work. Every row of the table represents a collection of related data values using a schema that are not determine a relationship. Based on the query, every record & data element from each table. Over the time uses of database & other computing & business intelligence tools, organizations can now leverage the data they collect to run more effectively & efficiently, for enable better decision-making. Optimizing access & throughput to data is critical for businesses, day-to-day life for that causes there is more data volume to track. By using this type of databases, people can easily store of the business performance, scale revenue, and agility that businesses need.

1.1 Background of the report:

During the epidemic, the government vaccinated a large number of people. Store this information needs a simple database. From this thought, I created a "relational database".

We know that the database management system manages all information effectively and active users to complete tasks, assign with database administration. By using a database management system reserves & manages a larger number of data within particular application software. It also increases overall business performance and reduces expenses. We can easily store data typing and validity checks to ensure that data falls within acceptable ranges. In this database system, use of a primary key and foreign key multiple tables related to one another, this process makes that data to be non-repetitive. In this database system, data duplication chances are very

low for that causes people can easily use this database. Now a day's computerized record-keeping systems are used in this database system. The overall purpose of this database is to allow users to define, data store, update rerecords and the information contained in any database. Any type of data or information that can be significant to an individual or an organization's objects. Today, the database is used in – Bank, airlines, universality, manufacturing and selling & also human resources.

1.2 Report objective:

- To acquire knowledge on how we create an MS Access database using covid 19 data
- To obtain better knowledge about the flat databases.
- To know the relational database system.
- To understand and observe the average vaccinate age

1.3 Limitations of the report:

- Sufficient data records and reliable publications were not available which covered my topic.
- Time was a major factor because it is not possible to collect all information within this short span of time.
- Large-scale research was not possible due to constraints.

1.4 Methodology:

In my project paper I used both primary and secondary data and information.

- **Primary Data:** I collected primary data, by interviewing people.
- **Secondary Data:** Journals, and some web sites I collect secondary data & information about this project.

2 Relational Database:

The database is a storehouse of data or information- stored and accessed electronically from a computer system. “A relational database is one that presents information in tables with rows and columns. A table is referred to as a relation in the sense that it is a collection of objects of the same type (rows). Data in a table can be related according to common keys or concepts, and the ability to retrieve related data from a table is the basis for the term relational database. A Database Management System (DBMS) handles the way data is stored, maintained, and retrieved. In the case of a relational database, a Relational Database Management System (RDBMS) performs these tasks. DBMS as used in this book is a general term that includes RDBMS.” [1] When data is separated within the table of the database, it is possible to make a few tables to be tagged as confidential. For example- By using a username & password a data analyst tries to log in. In that time database can set boundaries a flashpoint for their access level. Depending on their access level, providing admission only to the tables that they are allowed to work on it. By using a daemon server, database management systems provide access on the database, specialized software that listens for requests on a network, & that allows clients to connect and also use the database. In user’s computer, no need to log for use this database and the security systems for the database are more confidential.

2.1 How does a relational database work?

In a relational database, data use in a relationship & information is stored in related objects. Every row holds, by defining primary key information records with a unique identity & every column carries, attributes of the data. Every data record assigns a value features & establishes relationships within data point. It helps easily identify every record of data. Because the logical structures of data tables, indexes, views etc. are separate from the physical structures’ data storage. For this causes physical data storage without affecting access to that data as logical data structure manages database administrators. In this database, every table is directly or indirectly connected with each other.

In the relational database alleged work in a logical structure. “The database operations imparity between logical and physical, that are clearly defined actions. which enable applications to manipulate the data & structures of the database. The logical operations allow an application to specific content it needs, and physical operations determine how that data should be accessed

and carries out of task. For ensure that, data is always accurate & accessible, relational databases follow integrity rules.” [2]

2.2 File-processing system

The File-processing system of database is supported by neighborly in the data operating system. For stores of information and various file recorded permanently helps this file processing system. To modify appropriate files and extract records from & data it needs different application programs. In this DBMS every file provides a unique identity by using primary key and foreign key.

2.3 Pros & cons of relational databases:

Pros:

- Relational databases always work with structured data.
- It works with built-in data integrity and a large eco-system.
- In this database centralized control of the data helps in permitting the administrator to define integrity constraints to the data in the database.
- Relational databases relationships system has constraints.
- Having complete authority over the operational data and it maintain high security.
- There is limitless indexing.
- Data is managed by the database management system & all access to the data is through the DBMS providing a key to effective data processing.

Cons:

- Relational Databases don't balance out horizontally (Data size & concurrency).
- Relational Databases is a complex database system. It works multiple functionality to provide user best & some software makes complex. Without database administrative the designers and developers cannot any change and thorough knowledge if need.
- Data is normalized, meaning lots of relational joins, which affects speed.
- In this database one of the major problems is working with semi-structure data.

2.4 Relationship type:

Relational Database used to create a well-defined relationship between database tables so that relational databases can be easily stored. There are three type of relationship-

- ❖ One-to-One Relationship
- ❖ One-To-Many Relationship
- ❖ Many-to-Many Relationship

2.4.1 One-to-One Relationship:

In a relational database when we create a relationship between two tables it called one-to-one relationship. Two tables have only one records of either side of the relationship. In this relationship every single row of the 1st table only related to one records of another 2nd table. It means every primary key value relates one record in the related table. Similarly, in row of the second table also be related to another row of the first table.

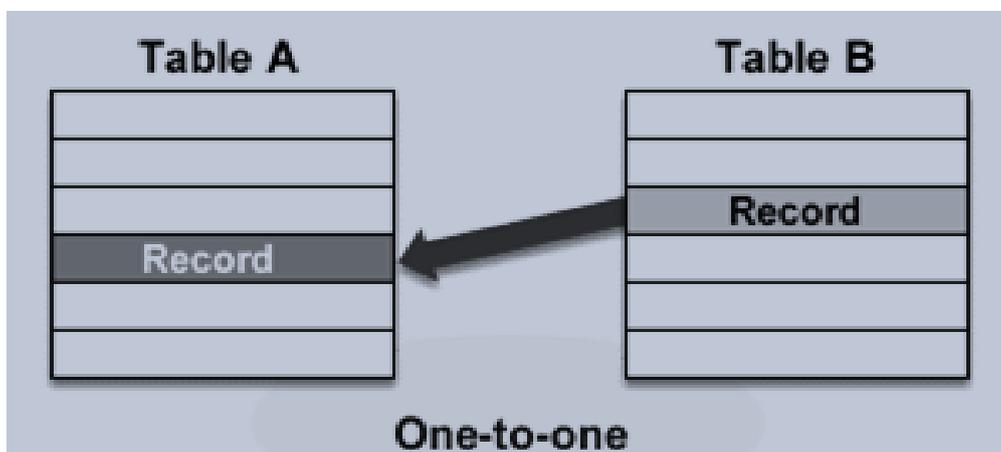


Figure 1: One-to-One Relationship

2.4.2 One to many relationships:

The one-to-many relationships build up a relation within two tables. Every individual row of the 1st table can be connected to one or more rows of the 2nd table, but row of the 2nd tables can only relate to the only row in the 1st table. Most common use of one-to-one relations is to create separate entity classes to enrich security. In non- attendance some rule, it can usually combine tables into one table without breaking any normalization rules.

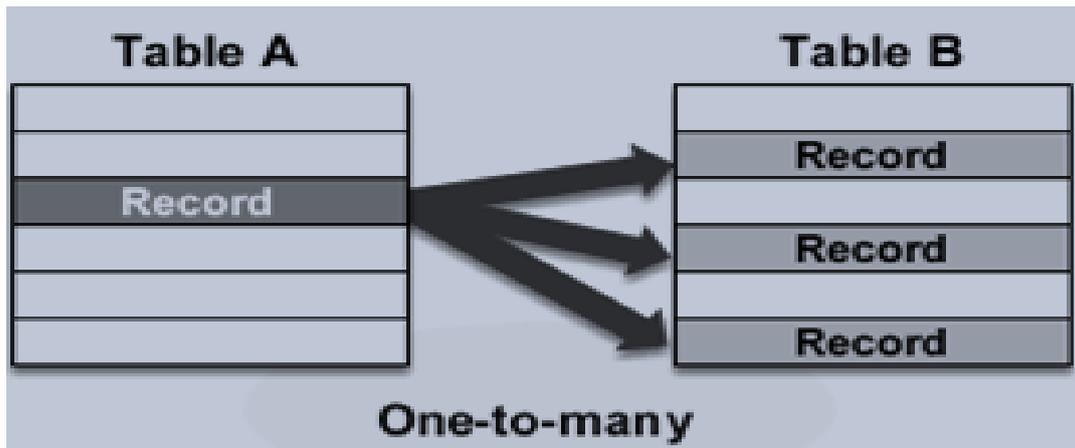


Figure 2: One-To-Many Relationship

2.4.3 Many-to-Many Relationship:

In relational model, many records in one table can relate to many records in another table. It's called many-to-many relationship. In many-to-many relationship record in both tables, it can relate to any number of records in the other table. It require a 3rd table, known as an associate or linking table, for that courses in this relationship status it directly not accommodate a relationship.

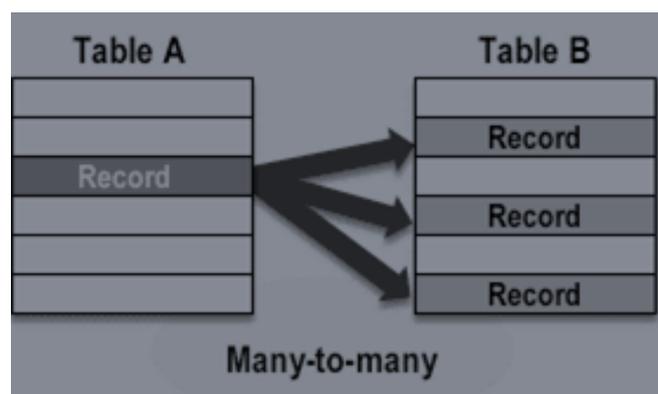


Figure 3; Many-to-Many Relationship

2.5 Flat File:

A flat-file database means a text file database. “A flat-file database cannot contain multiple tables like a relational database. Luckily, database administrators such as Microsoft Access and FileMaker Pro can import flat file databases and use them to create a larger relational database.”

[3] All data is stored in a single directory in this computer file system. It is one of the significant types of databases that used plain text file format to store data in the database. In this database data stores in a single table. Every line of the plain text file holds only one data record. It means that, by using a computer file processing system that store all type of data in a single directory. It's one of the simple ways for file store and adding more data this system becomes increasingly inefficient.

2.5.1 Advantages of Flat file database

Advantages list of Flat file database -

1. All records are stored in one space.
2. Easily understand & configure using various standard office applications.
3. Flat file database is a lovely choice for small type of databases.
4. It kneads few number of hardware & software.

2.5.2 Disadvantages of flat-file database

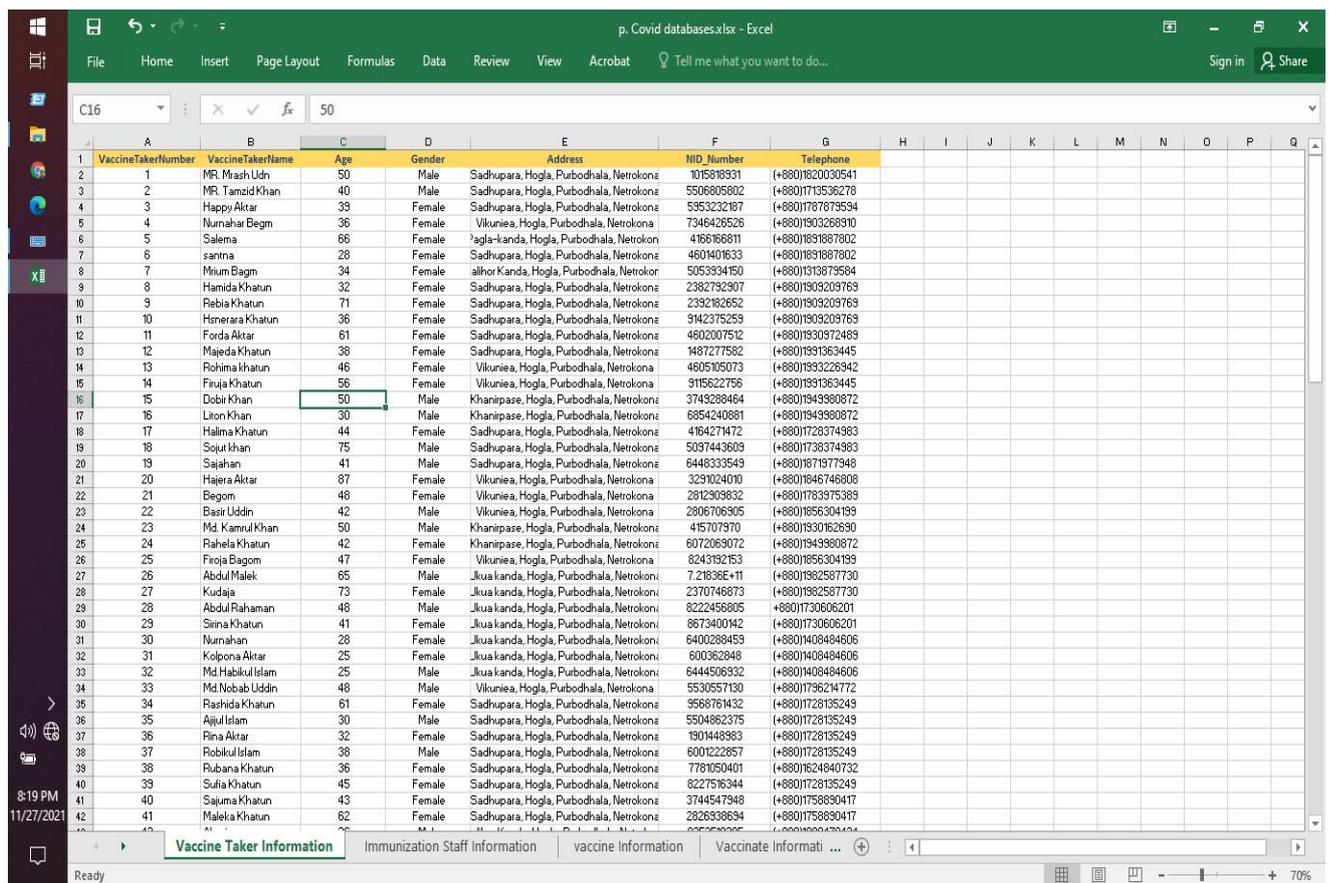
Disadvantages of flat-file database -

1. For updating flat-file database, need more time & it is harder.
2. Changing data format is difficult.
3. In this database increased data redundancy and inconsistency.

Part - One

3 Create A Flat File Database:

We need to follow some Steps for creating a flat-file database. First we need to open **MS Excel** and renamed the sheet name “Vaccine Taker Information”. It helps easy to identify the sheet. Then we merged cell A1 to G1, we have entered the headings which are VaccineTakerNumber, VaccineTakerName, Age, Gender, Address, NID_Number and Telephone. The second row of the excel sheet, we need to entered data of Vaccine Taker Information. In this project paper, I used 120 vaccine taker data. After that, we need to elect the columns A2 to G12 and ascertain the working area name- ‘Vaccinate list’ for that when we need to refer and transfer data while flourishing in the next step & after that, we need to save the spreadsheet – Covid_database in excel format.



VaccineTakerNumber	VaccineTakerName	Age	Gender	Address	NID_Number	Telephone
1	MR. Mash Udn	50	Male	Sadhpupara, Hogla, Purbodhala, Netrokona	1015818331	(+880)1820030541
2	MR. Tamzid Khan	40	Male	Sadhpupara, Hogla, Purbodhala, Netrokona	5506805802	(+880)1713536278
3	Happy Aktar	39	Female	Sadhpupara, Hogla, Purbodhala, Netrokona	5953232187	(+880)1787879594
4	Nunahar Begm	36	Female	Vikuniea, Hogla, Purbodhala, Netrokona	7346426526	(+880)1903268910
5	Salema	66	Female	Yagla-kanda, Hogla, Purbodhala, Netrokon	4166166811	(+880)1831887802
6	sarina	28	Female	Sadhpupara, Hogla, Purbodhala, Netrokona	4601401633	(+880)1831887802
7	Mitum Bagm	34	Female	alhor Kanda, Hogla, Purbodhala, Netrokor	5053334150	(+880)1313879584
8	Hamida Khatun	32	Female	Sadhpupara, Hogla, Purbodhala, Netrokona	2382732907	(+880)1903209763
9	Rebia Khatun	71	Female	Sadhpupara, Hogla, Purbodhala, Netrokona	2332182652	(+880)1903209763
10	Hmerara Khatun	36	Female	Sadhpupara, Hogla, Purbodhala, Netrokona	9142375259	(+880)1903209763
11	Forda Aktar	61	Female	Sadhpupara, Hogla, Purbodhala, Netrokona	4602007512	(+880)1930972489
12	Majeda Khatun	38	Female	Sadhpupara, Hogla, Purbodhala, Netrokona	1487277582	(+880)1931363445
13	Rohima Khatun	46	Female	Vikuniea, Hogla, Purbodhala, Netrokona	4605105073	(+880)1933226942
14	Firujia Khatun	56	Female	Vikuniea, Hogla, Purbodhala, Netrokona	9115622756	(+880)1931363445
15	Dobir Khan	50	Male	Khanipase, Hogla, Purbodhala, Netrokon	3743288464	(+880)1943980872
16	Liton Khan	30	Male	Khanipase, Hogla, Purbodhala, Netrokon	6854240881	(+880)1943980872
17	Halima Khatun	44	Female	Sadhpupara, Hogla, Purbodhala, Netrokona	4164271472	(+880)1728374963
18	Sojut Khan	75	Male	Sadhpupara, Hogla, Purbodhala, Netrokona	5097443609	(+880)1728374963
19	Sajahan	41	Male	Sadhpupara, Hogla, Purbodhala, Netrokona	6448333549	(+880)1817977948
20	Hajera Aktar	87	Female	Vikuniea, Hogla, Purbodhala, Netrokona	3291024010	(+880)1846746808
21	Begom	48	Female	Vikuniea, Hogla, Purbodhala, Netrokona	2812309632	(+880)1783975369
22	Basir Uddin	42	Male	Vikuniea, Hogla, Purbodhala, Netrokona	2806706905	(+880)1856304199
23	Md. Kamrul Khan	50	Male	Khanipase, Hogla, Purbodhala, Netrokon	415707970	(+880)1930162630
24	Rahela Khatun	42	Female	Khanipase, Hogla, Purbodhala, Netrokon	6072069072	(+880)1943980872
25	Firoja Bagom	47	Female	Vikuniea, Hogla, Purbodhala, Netrokona	8243192153	(+880)1856304199
26	Abdul Malek	65	Male	Jkua kanda, Hogla, Purbodhala, Netrokon	721836+11	(+880)1982587730
27	Kudaja	73	Female	Jkua kanda, Hogla, Purbodhala, Netrokon	2370746873	(+880)1982587730
28	Abdul Rahaman	48	Male	Jkua kanda, Hogla, Purbodhala, Netrokon	8222456805	+880)1730606201
29	Simna Khatun	41	Female	Jkua kanda, Hogla, Purbodhala, Netrokon	8673400142	(+880)1730606201
30	Nunahan	28	Female	Jkua kanda, Hogla, Purbodhala, Netrokon	6400288459	(+880)1408494606
31	Koipona Aktar	25	Female	Jkua kanda, Hogla, Purbodhala, Netrokon	600362848	(+880)1408494606
32	Md.Habikul Islam	25	Male	Jkua kanda, Hogla, Purbodhala, Netrokon	6444506932	(+880)1408494606
33	Md.Nobab Uddin	48	Male	Vikuniea, Hogla, Purbodhala, Netrokona	5530557130	(+880)1736214772
34	Rashida Khatun	61	Female	Sadhpupara, Hogla, Purbodhala, Netrokona	9568761432	(+880)1728135249
35	Ajzul Islam	30	Male	Sadhpupara, Hogla, Purbodhala, Netrokona	5504862375	(+880)1728135249
36	Pina Aktar	32	Female	Sadhpupara, Hogla, Purbodhala, Netrokona	190148983	(+880)1728135249
37	Robikul Islam	38	Male	Sadhpupara, Hogla, Purbodhala, Netrokona	6001222857	(+880)1728135249
38	Rubana Khatun	36	Female	Sadhpupara, Hogla, Purbodhala, Netrokona	7781050401	(+880)1624840732
39	Suifa Khatun	45	Female	Sadhpupara, Hogla, Purbodhala, Netrokona	8227516344	(+880)1728135249
40	Sajuma Khatun	43	Female	Sadhpupara, Hogla, Purbodhala, Netrokona	3744547948	(+880)1758890417
41	Maleka Khatun	62	Female	Sadhpupara, Hogla, Purbodhala, Netrokona	2826338694	(+880)1758890417

Figure 4: Vaccine Taker Information 1

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
40	33	Sufia Khatun	45	Female	Sadhupara, Hogla, Purbodhala, Netrokona	8227516344	(+880)172135243										
41	40	Sajuma Khatun	43	Female	Sadhupara, Hogla, Purbodhala, Netrokona	3744547348	(+880)1758890417										
42	41	Maleka Khatun	62	Female	Sadhupara, Hogla, Purbodhala, Netrokona	2826338634	(+880)1758890417										
43	42	Alamin	26	Male	alhor Kanda, Hogla, Purbodhala, Netrokor	8253519295	(+880)1860478434										
44	43	Surma Akter	26	Female	alhor Kanda, Hogla, Purbodhala, Netrokor	6303500624	(+880)1860478434										
45	44	Mainuddin	48	Male	alhor Kanda, Hogla, Purbodhala, Netrokor	2381233093	(+880)1860478434										
46	45	Ambia Khatun	58	Female	alhor Kanda, Hogla, Purbodhala, Netrokor	1487933881	(+880)1860478434										
47	46	Abu Naim	34	Male	alhor Kanda, Hogla, Purbodhala, Netrokor	8202131069	(+880)1860478434										
48	47	Rahima Begom	37	Female	Nij-Hogla, Hogla, Purbodhala, Netrokona	8637472065	(+880)1888542198										
49	48	Abdul Malek	60	Male	Nij-Hogla, Hogla, Purbodhala, Netrokona	7756872227	(+880)1963143041										
50	49	Md Robikul Islam	37	Male	Nij-Hogla, Hogla, Purbodhala, Netrokona	9573870004	(+880)1868542198										
51	50	Roton Mia	32	Male	Sadhupara, Hogla, Purbodhala, Netrokona	5036216154	(+880)1757123219										
52	51	Nasrin Begom	28	Female	Sadhupara, Hogla, Purbodhala, Netrokona	5510757236	(+880)1757123219										
53	52	Taslima	35	Female	Panisha, Hogla, Purbodhala, Netrokona	1016234005	(+880)1774390806										
54	53	Rais Uddin	46	Male	Panisha, Hogla, Purbodhala, Netrokona	4178540508	(+880)1774390806										
55	54	Md Samsu Khan	48	Male	'agla-kanda, Hogla, Purbodhala, Netrokon	912519411	(+880)1728817318										
56	55	Mojina Khatun	38	Female	'agla-kanda, Hogla, Purbodhala, Netrokon	4158497737	(+880)1728817318										
57	56	Nasir Uddin	47	Male	Sadhupara, Hogla, Purbodhala, Netrokona	5053369724	(+880)1823736144										
58	57	Jubeda Khatun	42	Female	Sadhupara, Hogla, Purbodhala, Netrokona	4187198036	(+880)1823736144										
59	58	Kolpona	40	Female	Nij-Hogla, Hogla, Purbodhala, Netrokona	6.7258E+12	(+880)1745495939										
60	59	Md. Motalep	43	Male	Nij-Hogla, Hogla, Purbodhala, Netrokona	6.7258E+12	(+880)1745495939										
61	60	Sahin Khan	33	Male	Khanitpase, Hogla, Purbodhala, Netrokon	8656753244	(+880)1766103740										
62	61	Ajka Akter	25	Female	Khanitpase, Hogla, Purbodhala, Netrokon	4213275128	(+880)1766103740										
63	62	Hosnerara	25	Female	Khanitpase, Hogla, Purbodhala, Netrokon	1513294502	(+880)1527212474										
64	63	Rahim	36	Male	Khanitpase, Hogla, Purbodhala, Netrokon	318272278	(+880)1527212474										
65	64	Johorua Khatun	58	Female	Khanitpase, Hogla, Purbodhala, Netrokon	9564609049	(+880)1316654505										
66	65	Md. Molk Alondo	73	Male	Khanitpase, Hogla, Purbodhala, Netrokon	7756322553	(+880)1316654505										
67	66	Akikul Alondo	28	Male	Khanitpase, Hogla, Purbodhala, Netrokon	2827234333	(+880)1316654505										
68	67	Md Sabikul Islam	50	Male	Nij-Hogla, Hogla, Purbodhala, Netrokona	6850937634	(+880)1322540114										
69	68	Nurjahan Akter	32	Female	Nij-Hogla, Hogla, Purbodhala, Netrokona	2379995356	(+880)1322540114										
70	69	Sahin Khan	33	Male	Khanitpase, Hogla, Purbodhala, Netrokon	6.65E+11	(+880)1930554714										
71	70	Md. Alamin	26	Male	Sadhupara, Hogla, Purbodhala, Netrokon	3718600359	(+880)1795408838										
72	71	Kamal Mia	32	Male	Sadhupara, Hogla, Purbodhala, Netrokona	7777385506	(+880)1795408838										
73	72	Pavun Khatun	38	Female	Nij-Hogla, Hogla, Purbodhala, Netrokona	6898513688	(+880)1525603066										
74	73	Sahera Khatun	63	Female	Nij-Hogla, Hogla, Purbodhala, Netrokona	7.21836E+12	(+880)1758823432										
75	74	Jubeda	63	Female	Nij-Hogla, Hogla, Purbodhala, Netrokona	6891679658	(+880)1868001611										
76	75	Monara Khatun	47	Female	Nij-Hogla, Hogla, Purbodhala, Netrokona	3252585170	(+880)1966230039										
77	76	Khadia Khatun	45	Female	Nij-Hogla, Hogla, Purbodhala, Netrokona	1016622180	(+880)1966230039										
78	77	Najmul Islam	30	Male	Sadhupara, Hogla, Purbodhala, Netrokona	6423713467	(+880)171096155										
79	78	Fatema	73	Female	Nij-Hogla, Hogla, Purbodhala, Netrokona	505534617	(+880)1966230039										
80	79	Mokbul Hoson	73	Male	Nij-Hogla, Hogla, Purbodhala, Netrokona	4600604088	(+880)1966230039										
81	80	Anamul	22	Male	Sadhupara, Hogla, Purbodhala, Netrokona	8254674336	(+880)179743348										

Figure 5: Vaccine Taker Information 2

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
80	79	Mokbul Hoson	73	Male	Nij-Hogla, Hogla, Purbodhala, Netrokona	4600604088	(+880)1966230039										
81	80	Anamul	22	Male	Sadhupara, Hogla, Purbodhala, Netrokona	8254674336	(+880)179743348										
82	81	Bikish Akter	25	Female	Sadhupara, Hogla, Purbodhala, Netrokona	375339970	(+880)179743348										
83	82	Johora Khatun	64	Female	Sadhupara, Hogla, Purbodhala, Netrokona	371333608	(+880)179743348										
84	83	Joshim Uddin	31	Male	Sadhupara, Hogla, Purbodhala, Netrokona	192035518	(+880)179743348										
85	84	Liton Mia	33	Male	Sadhupara, Hogla, Purbodhala, Netrokona	5030198141	(+880)1851609332										
86	85	Jamena Khatun	56	Female	Sadhupara, Hogla, Purbodhala, Netrokona	7345147638	(+880)1321463352										
87	86	Hashu Shek	61	Male	Sadhupara, Hogla, Purbodhala, Netrokon	3721865420	(+880)1321463352										
88	87	Aisha Khatun	66	Female	Sadhupara, Hogla, Purbodhala, Netrokon	9110451912	(+880)1321463352										
89	88	Ruma Begom	26	Female	Sadhupara, Hogla, Purbodhala, Netrokon	3283401689	(+880)1791056288										
90	89	Ripon Ma	26	Male	Nij-Hogla, Hogla, Purbodhala, Netrokona	1026766632	(+880)1791056288										
91	90	Khodeja Khatun	32	Male	Sadhupara, Hogla, Purbodhala, Netrokon	6539007451	(+880)1713539996										
92	91	Asma Khatun	47	Female	Sadhupara, Hogla, Purbodhala, Netrokon	4635267895	(+880)1713539996										
93	92	Masud	23	Male	Nij-Hogla, Hogla, Purbodhala, Netrokona	6004969523	(+880)1985387334										
94	93	Salma Khatun	67	Female	Nij-Hogla, Hogla, Purbodhala, Netrokona	4815076892	(+880)1985387334										
95	94	Md. Alamin	25	Male	Sadhupara, Hogla, Purbodhala, Netrokon	9135122019	(+880)1820431922										
96	95	Ajgul Haque	33	Male	Sadhupara, Hogla, Purbodhala, Netrokon	1936016325	(+880)1820431922										
97	96	Asia Begom	61	Female	Sadhupara, Hogla, Purbodhala, Netrokon	731649524	(+880)1732272030										
98	97	Abdul salam	63	Male	Sadhupara, Hogla, Purbodhala, Netrokon	1462437421	(+880)1732272030										
99	98	Orin Mia	25	Male	Sadhupara, Hogla, Purbodhala, Netrokon	1403909246	(+880)1789041638										
100	99	Abdul Roshid	49	Male	Sadhupara, Hogla, Purbodhala, Netrokon	1021142285	(+880)1789041638										
101	100	Asia	54	Female	Sadhupara, Hogla, Purbodhala, Netrokon	3290463433	(+880)1789041638										
102	101	Anjum Khatun	44	Female	Sadhupara, Hogla, Purbodhala, Netrokon	7766860656	(+880)1789041638										
103	102	Jorina Khatun	54	Female	Sadhupara, Hogla, Purbodhala, Netrokon	2812366546	(+880)1789041638										
104	103	Lokman Hakim	43	Male	Nij-Hogla, Hogla, Purbodhala, Netrokona	6417285193	(+880)1952202212										
105	104	Rebia Khatun	44	Female	Nij-Hogla, Hogla, Purbodhala, Netrokona	1944413457	(+880)1952202212										
106	105	Taslima Begom	33	Female	Sadhupara, Hogla, Purbodhala, Netrokon	3280680113	(+880)1881519310										
107	106	Hasna Akter	20	Female	Sadhupara, Hogla, Purbodhala, Netrokon	6913277236	(+880)1881519310										
108	107	Najma Akter	37	Female	Sadhupara, Hogla, Purbodhala, Netrokon	5056864377	(+880)1782775317										
109	108	Habikul Islam	40	Male	Sadhupara, Hogla, Purbodhala, Netrokon	4160688187	(+880)1782775317										
110	109	Najmul	30	Male	Sadhupara, Hogla, Purbodhala, Netrokon	6423713467	(+880)1917425878										
111	110	Md sajjahan	43	Male	Sadhupara, Hogla, Purbodhala, Netrokon	8653288214	(+880)1913108324										
112	111	Abdul jobor	43	Male	Sadhupara, Hogla, Purbodhala, Netrokon	5521778625	(+880)17176738871										
113	112	Taslimabegom	25	Female	Sadhupara, Hogla, Purbodhala, Netrokon	3256363249	(+880)1965932560										
114	113	Sorai Uddin	40	Male	'alhor Kanda, Hogla, Purbodhala, Netrokon	1490858049	(+880)1943617352										
115	114	Md. Islam	38	Male	Sadhupara, Hogla, Purbodhala, Netrokon	5956573239	(+880)1913879583										
116	115	Sulema Khatun	35	Female	Sadhupara, Hogla, Purbodhala, Netrokon	641288473	(+880)1790513445										
117	116	Rekha Khatun	27	Female	Sadhupara, Hogla, Purbodhala, Netrokon	3702893860	(+880)1703489653										
118	117	Lokhi Rani	40	Female	Panisha, Hogla, Purbodhala, Netrokona	4627024393	(+880)1772894832										
119	118	Sahana Khatun	33	Female	Sadhupara, Hogla, Purbodhala, Netrokon	3269084780	(+880)1786423720										
120	119	Md. Sonu Mia	37	Male	Sadhupara, Hogla, Purbodhala, Netrokon	3716153186	(+880)1786423720										
121	120	Froja Begom	48	Female	'agla-kanda, Hogla, Purbodhala, Netrokon	4188306122	(+880)131007967										

Figure 6: Vaccine Taker Information 3

Part - Two

4 Importing Data from an Excel Spreadsheet:

There are the following steps-

Step 1: we need to open Microsoft Access.

Step 2: Home page of Microsoft Access will appear on the screen; in which we need to follow some steps -



Figure 7: Create a blank database

1. For open available all templates in Microsoft Access, we need to click on the Blank database.
2. covid database.accdb type database name of the text box.
3. Now find the location where we want to save my covid database file.
4. After that we need to click the create option and which we see in the picture above.

Step 3: In Microsoft access we see automatically create a table, that is new table1. Now we select the table and close all table. Noted: right now there are no table available in this database.

Step 4: “Data import from the excel spreadsheet to the flat-file database which we made in part one in Microsoft Access. Import data from the flat file, at first we need to open MS Access. Then, we need to click the external data tab & select on Import excel spreadsheet (excel button). Now in the window pops out, we need to select a file for input data. Then we need to select the ‘Import the source data into a new table in the current database’ option & then click ok. Import Spreadsheet Wizard window, we need to select the “Show Named Ranges” radio option and ‘vaccine Taker Information’ selected the range, after that, we select next > button. Then checking the box, “First Row Contains Column Headings”, again we need to click the next option. After that, we select the “No” column in the table. Now we need to change the Field Name “VaccineTakerNumber”, from field options & clicked the Next option. After that, we have to selected the “Choose my own primary key” in the radio option and chose “VaccineTakerNumber” from the drop-down list & click next> option.” [4]

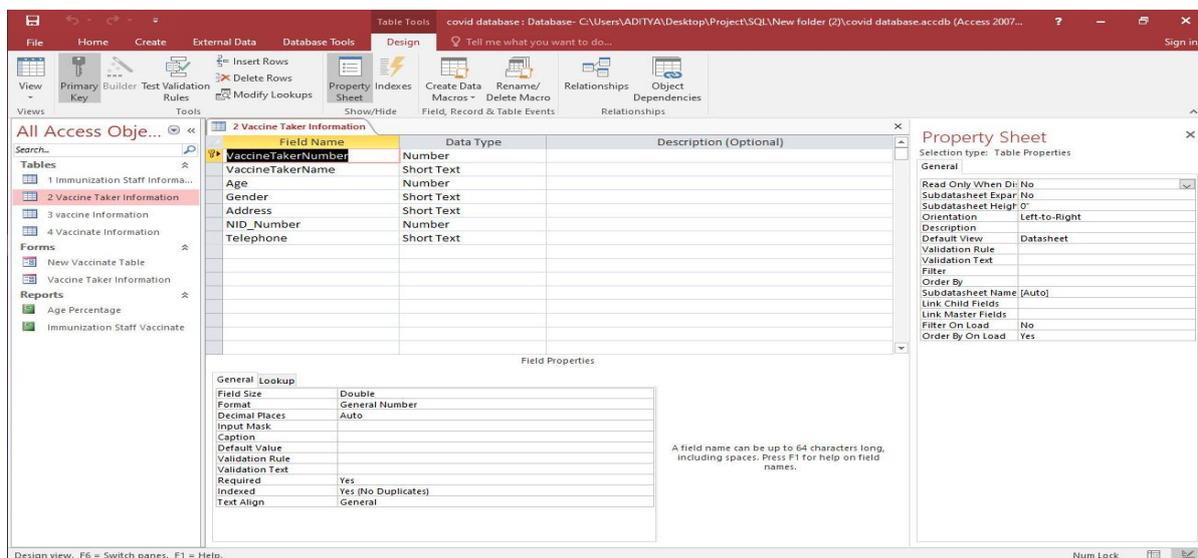


Figure 8: Vaccine Taker Information

Importing excel table, we’ve entered “Vaccine Taker Information Table”, After that we need to clicked on finish button & the close option. Now, we open design view of the Vaccine taker information. After that we will follow the - Vaccine Taker Information table that will store all Vaccine Taker Information related information, & the Data Types is- VaccineTakerNumber- Number, VaccineTakeName - Short Text, Gender - Short Text, Address - Short Text, NID Number- Number, Telephone – short Text. After that We need to set up our one primary key by selecting Vaccine Taker Information & after that under the Design tab we need to selecting the Primary Key and saved table.

Step 5: “Now we need to add all desired Field names in the table, for doing this click on the **View** tab top of the document & click on the Datasheet View option from the View from the drop-down menu.” [2]

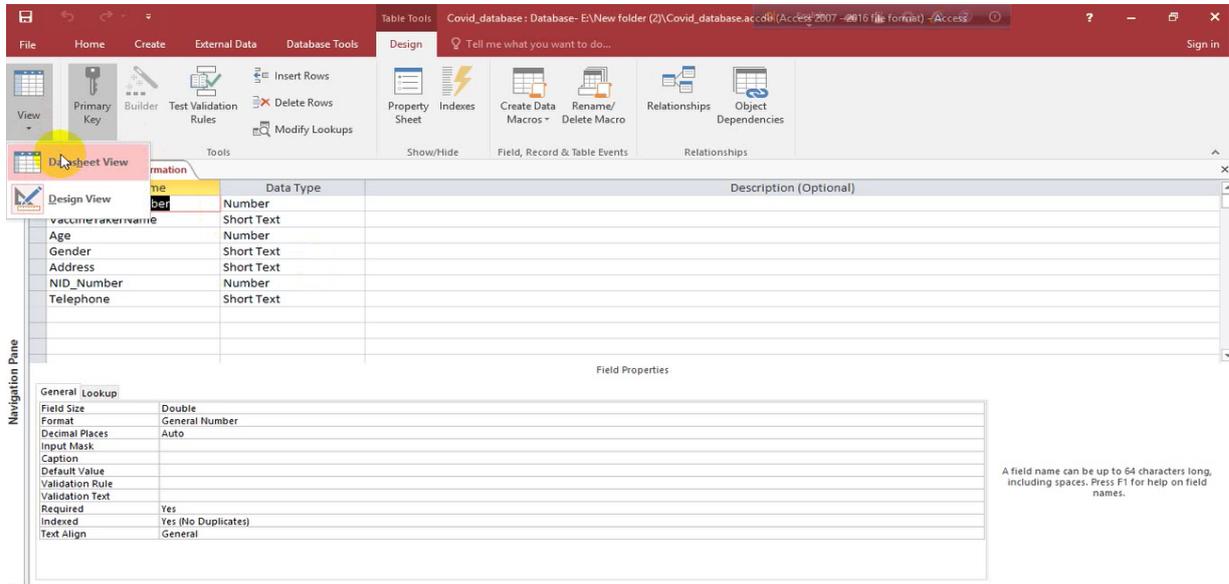


Figure 9: Vaccine Taker Information

Now in this window will appear with desired files names. If need to enter any required data in the Fields names, after that save the database file click on the save option.

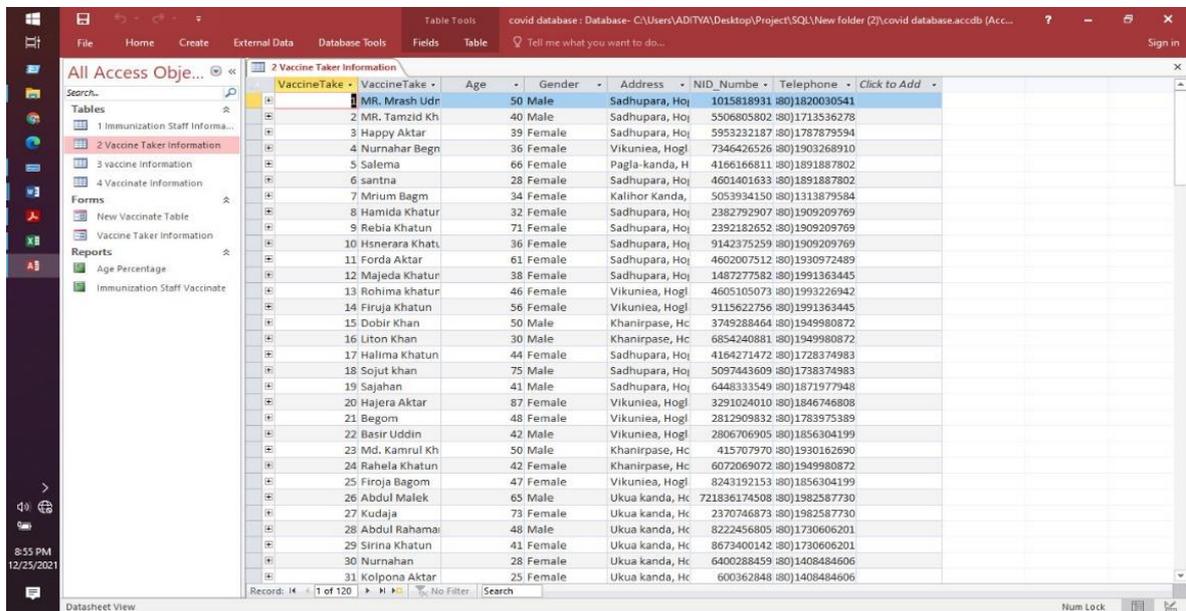


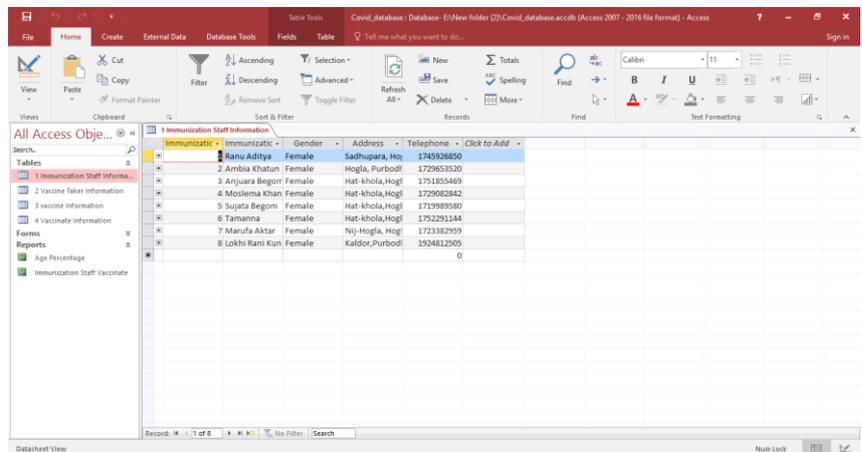
Figure 10: Vaccine Taker Information

Part - Three

5 Creating Database Tables:

We need to create 3 additional database tables that will store- Immunization Staff Information, vaccine Information & Vaccinate Information. Now we will follow the - Immunization Staff Information table that will store all Immunization Staff-related information. The data types are- ImmunizationStaffNumber- Number, ImmunizationStaffName - Short Text, Gender - Short Text, Address - Short Text, Telephone - data type is short tex. We need to set up the primary key by selecting the ImmunizationStaffNumber,

we find it under the design tab. Then we need to save the table and rename named it Customers Table. Now we need to set up Input Mask for the telephone filed. It means specifies a pattern is our Immunization Staff table:



After that we need to open ImmunizationStaff table in this database & add a status to each of our Immunization staff in listed Staff. Now we need to just click in the ImmunizationStaffStatus cell for every employee & click on lookup option. In Row source writ down- "Full-time"; "Part-time"; "On-call", after this we save & closed the table. Now in the ImmunizationStaffStatus table we input the staff status.

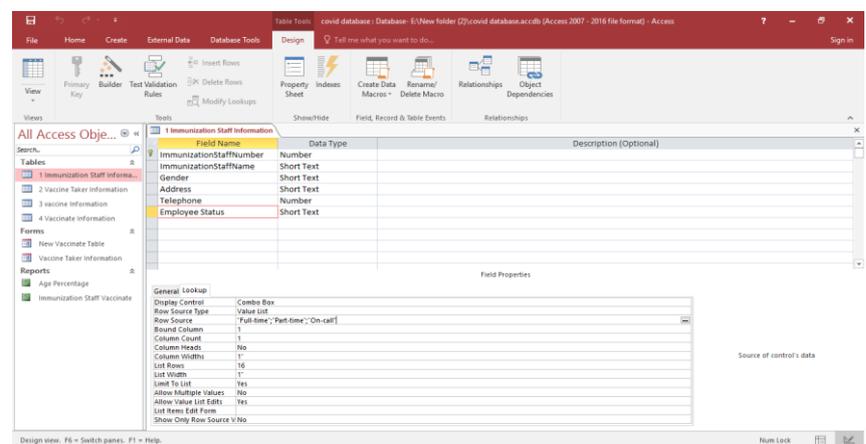


Figure 11: Immunization Staff table

5.1 Create a vaccine Information table in excel shit:

Creating a vaccine Information table, we need to open MS Excel & click on + button for add a new sheen. Now rename the shit name vaccine Information. In A1 writ down Vaccine_Number and in B1 writ down Vaccine_Name Like this Excel sheet –

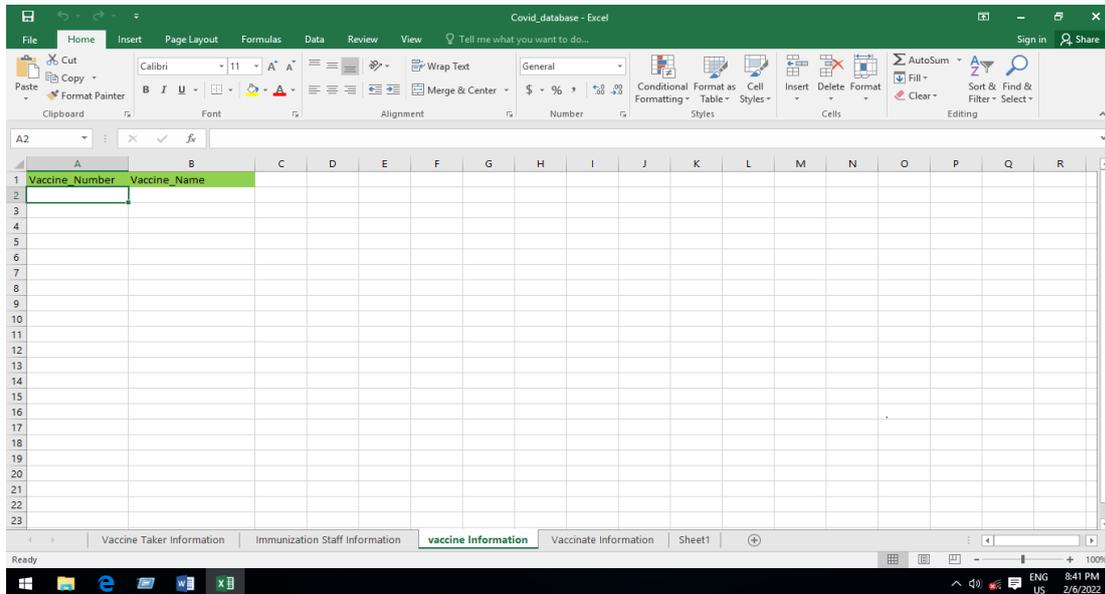


Figure 12 ; Immunization Staff table

Now we need to input all vaccine name which are available in Bangladesh. like this screenshot-

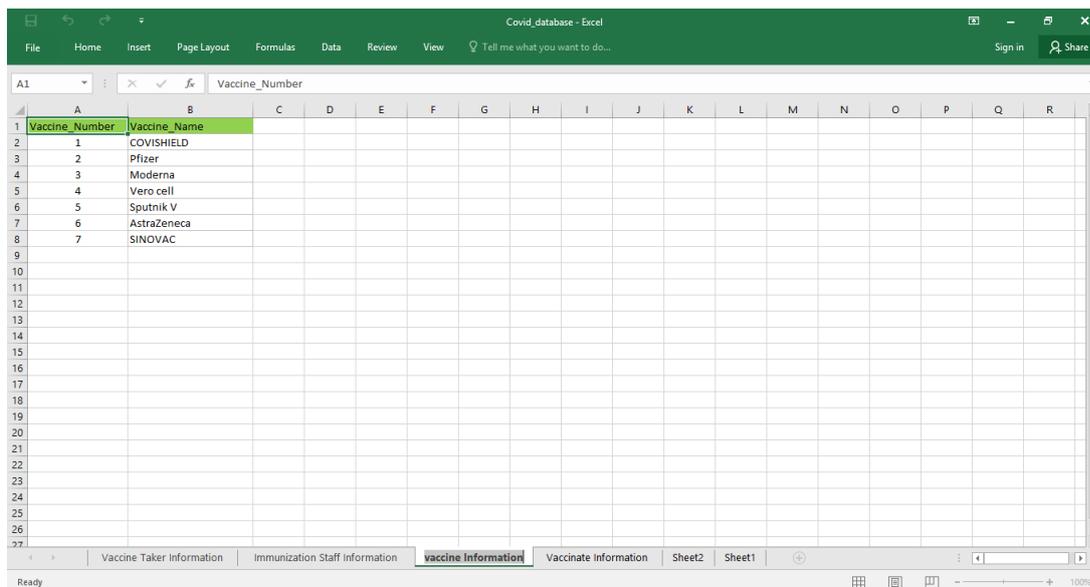


Figure 13; vaccine Information table

5.2 Create a Vaccinate Information table:

Now again we need to create new sheet & rename the sheet name “Vaccinate Information”.

After that we need to input relative data like this excel sheet-

	A	B	C	D	E	F
1	VaccinateNumber	VaccineCompleteDate	VaccineTrackerNumber	ImmunizationStaffNumber	VaccineNumber	
2	1	09-07-2021	1	1	4	
3	2	09-07-2021	2	8	4	
4	3	09-07-2021	3	1	4	
5	4	09-07-2021	4	7	4	
6	5	09-07-2021	5	1	4	
7	6	09-07-2021	6	1	4	
8	7	09-07-2021	7	1	4	
9	8	09-07-2021	8	4	4	
10	9	09-07-2021	9	1	4	
11	10	09-07-2021	10	4	4	
12	11	09-07-2021	11	8	4	
13	12	09-07-2021	12	4	4	
14	13	09-07-2021	13	3	4	
15	14	09-07-2021	14	7	4	
16	15	09-07-2021	15	6	4	
17	16	09-07-2021	16	5	4	
18	17	09-07-2021	17	3	4	
19	18	09-07-2021	18	1	4	
20	19	09-07-2021	19	2	4	
21	20	09-07-2021	20	1	4	
22	21	09-07-2021	21	7	4	
23	22	09-07-2021	22	2	4	
24	23	09-07-2021	23	7	4	
25	24	09-07-2021	24	8	4	
26	25	09-07-2021	25	2	4	
27	26	09-07-2021	26	2	4	
28	27	09-07-2021	27	3	4	
29	28	09-07-2021	28	2	4	
30	29	09-07-2021	29	2	4	
31	30	09-07-2021	30	2	4	

Figure 14; Vaccinate Information table-1

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
31	30	09-07-2021	30	2	4													
32	31	09-07-2021	31	5	4													
33	32	09-07-2021	32	4	4													
34	33	09-07-2021	33	2	4													
35	34	09-07-2021	34	5	4													
36	35	09-07-2021	35	7	4													
37	36	09-07-2021	36	5	4													
38	37	09-07-2021	37	1	4													
39	38	09-07-2021	38	6	4													
40	39	09-07-2021	39	6	4													
41	40	09-07-2021	40	4	4													
42	41	09-07-2021	41	4	4													
43	42	09-07-2021	42	4	4													
44	43	09-07-2021	43	4	4													
45	44	09-07-2021	44	4	4													
46	45	09-07-2021	45	6	4													
47	46	09-07-2021	46	6	4													
48	47	09-07-2021	47	4	4													
49	48	09-07-2021	48	6	4													
50	49	09-07-2021	49	5	4													
51	50	09-07-2021	50	8	4													
52	51	09-07-2021	51	1	4													
53	52	09-07-2021	52	2	4													
54	53	09-07-2021	53	2	4													
55	54	09-07-2021	54	4	4													
56	55	09-07-2021	55	4	4													
57	56	09-07-2021	56	3	4													
58	57	09-07-2021	57	2	4													
59	58	09-07-2021	58	1	4													
60	59	09-07-2021	59	2	4													
61	60	09-07-2021	60	3	4													

Figure 15; Vaccinate Information table-2

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
62	61	09-07-2021	61	4	4													
63	62	09-07-2021	62	8	4													
64	63	09-07-2021	63	5	4													
65	64	09-07-2021	64	7	4													
66	65	09-07-2021	65	8	4													
67	66	09-07-2021	66	1	4													
68	67	09-07-2021	67	7	4													
69	68	09-07-2021	68	3	4													
70	69	09-07-2021	69	4	4													
71	70	09-07-2021	70	6	4													
72	71	09-07-2021	71	1	4													
73	72	09-07-2021	72	7	4													
74	73	09-07-2021	73	8	4													
75	74	09-07-2021	74	5	4													
76	75	09-07-2021	75	7	4													
77	76	09-07-2021	76	8	4													
78	77	09-07-2021	77	1	4													
79	78	09-07-2021	78	2	4													
80	79	09-07-2021	79	3	4													
81	80	09-07-2021	80	4	4													
82	81	09-07-2021	81	3	4													
83	82	09-07-2021	82	1	4													
84	83	09-07-2021	83	6	4													
85	84	09-07-2021	84	5	4													
86	85	09-07-2021	85	7	4													
87	86	09-07-2021	86	1	4													
88	87	09-07-2021	87	5	4													
89	88	09-07-2021	88	7	4													
90	89	09-07-2021	89	8	4													
91	90	09-07-2021	90	4	4													
92	91	09-07-2021	91	6	4													

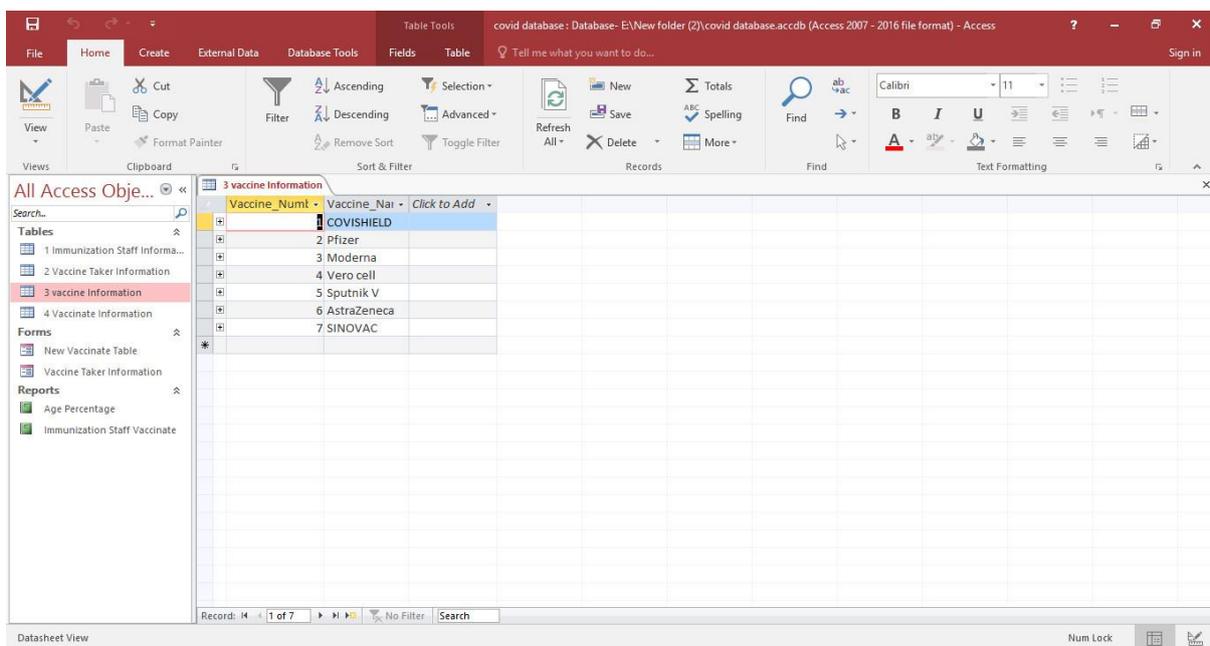
Figure 17; Vaccinate Information table-3

	A	B	C	D	E	F	G	H	I
91	90	09-07-2021	90	4	4				
92	91	09-07-2021	91	6	4				
93	92	09-07-2021	92	5	4				
94	93	09-07-2021	93	7	4				
95	94	09-07-2021	94	1	4				
96	95	09-07-2021	95	5	4				
97	96	09-07-2021	96	7	4				
98	97	09-07-2021	97	6	4				
99	98	09-07-2021	98	1	4				
100	99	09-07-2021	99	7	4				
101	100	09-07-2021	100	8	4				
102	101	09-07-2021	101	5	4				
103	102	09-07-2021	102	7	4				
104	103	09-07-2021	103	8	4				
105	104	09-07-2021	104	1	4				
106	105	09-07-2021	105	2	4				
107	106	09-07-2021	106	3	4				
108	107	09-07-2021	107	4	4				
109	108	09-07-2021	108	3	4				
110	109	09-07-2021	109	1	4				
111	110	09-07-2021	110	6	4				
112	111	09-07-2021	111	5	4				
113	112	09-07-2021	112	7	4				
114	113	09-07-2021	113	8	4				
115	114	09-07-2021	114	2	4				
116	115	09-07-2021	115	2	4				
117	116	09-07-2021	116	3	4				
118	117	09-07-2021	117	6	4				
119	118	09-07-2021	118	6	4				
120	119	09-07-2021	119	7	4				
121	120	09-07-2021	120	8	4				

Figure 16; Vaccinate Information table-4

5.3 Importing Data Excel Spreadsheet to MS Access Database:

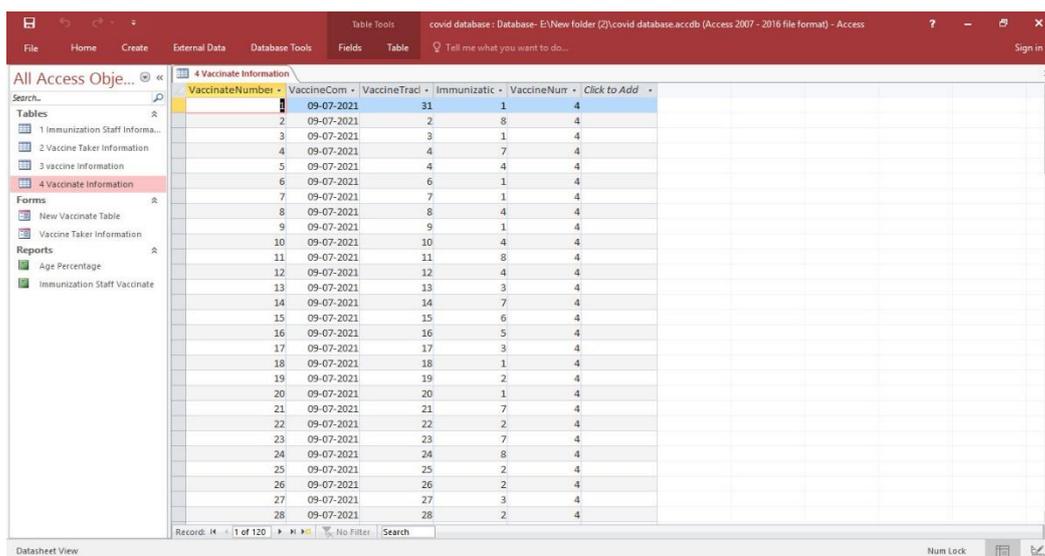
Now we need to input data excel to access. For input data MS access we need to follow some steps- which we learn in [“part two” Step 4](#). When we input data in access database, then we can see the database like this-



Vaccine_Numt	Vaccine_Nai	Click to Add
1	COVISHIELD	
2	Pfizer	
3	Moderna	
4	Vero cell	
5	Sputnik V	
6	AstraZeneca	
7	SINOVAC	

Figure 18; vaccine Information database table

❖ Vaccinate Information database table



VaccinateNumber	VaccineCom	VaccineTrad	Immunizatic	VaccineNumr	Click to Add
1	09-07-2021	31	1	4	
2	09-07-2021	2	8	4	
3	09-07-2021	3	1	4	
4	09-07-2021	4	7	4	
5	09-07-2021	4	4	4	
6	09-07-2021	6	1	4	
7	09-07-2021	7	1	4	
8	09-07-2021	8	4	4	
9	09-07-2021	9	1	4	
10	09-07-2021	10	4	4	
11	09-07-2021	11	8	4	
12	09-07-2021	12	4	4	
13	09-07-2021	13	3	4	
14	09-07-2021	14	7	4	
15	09-07-2021	15	6	4	
16	09-07-2021	16	5	4	
17	09-07-2021	17	3	4	
18	09-07-2021	18	1	4	
19	09-07-2021	19	2	4	
20	09-07-2021	20	1	4	
21	09-07-2021	21	7	4	
22	09-07-2021	22	2	4	
23	09-07-2021	23	7	4	
24	09-07-2021	24	8	4	
25	09-07-2021	25	2	4	
26	09-07-2021	26	2	4	
27	09-07-2021	27	3	4	
28	09-07-2021	28	2	4	

Figure 19; Vaccinate Information database table

Part - Four

6 Establishing Table Relationship:

I have already created four databases table, but there is no relationship. For relational database, we need to create a relationship. By using appropriate referential integrity, we setup relationship between the tables. When we update data in the database referential integrity set of rules that access enforce to keep up constancy between the related tables. After that we will create relationship the four database tables. For creating relationship, we need to click database tool, > then in relationship box click on relationship manure, > show table then we see a table name window. After that we can see the database like diagram shown below:

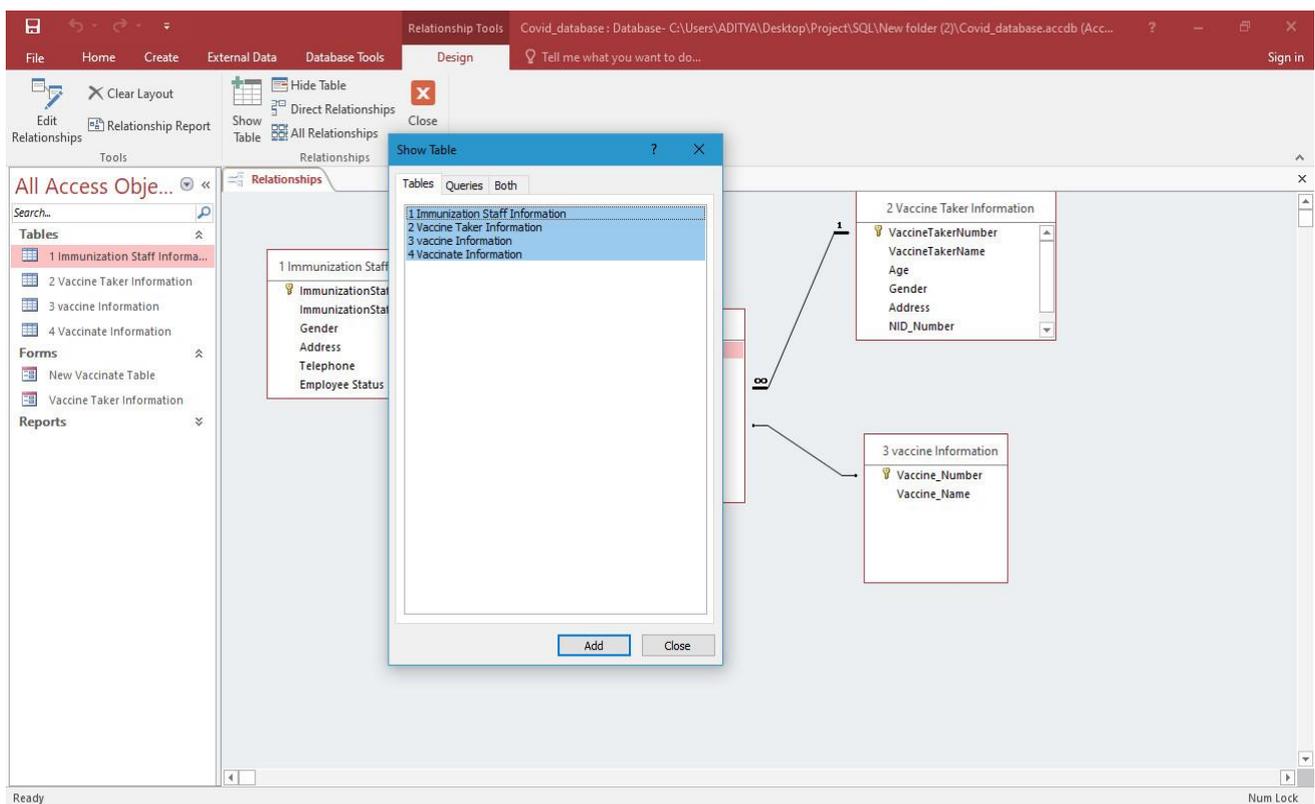


Figure 20; Database Table Relationship process

Now we need to arrange the tables properly. Buildup a relationship click hold and drag the ImmunizationStaffNumber field in the Immunization Staff Information. Over the ImmunizationStaffNumber filed in the Vaccinate Information table. Now two tables connect with each other. After that in the edit relationships window, checkmark box “enforce referential integrity” & click on the create option. Vaccine Taker Information & vaccine Information as like as the Immunization Staff Information table. Now close the relationships and save my files. When each table connect with each other then we can see the database like this-

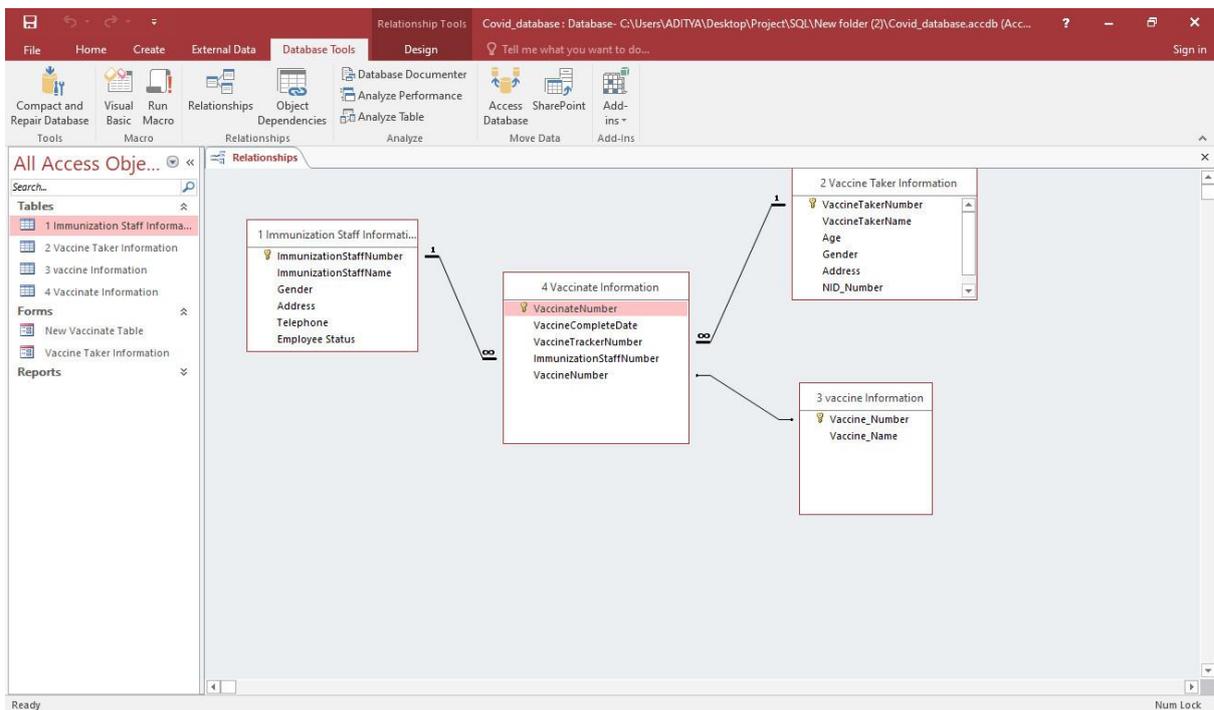


Figure 21; Database Table Relationship

Part – Five

7 From Generate:

Now we need to create an input form, by adding a new Vaccine Taker Information & other input from for taking new Vaccinate Information. So that we need to build up an input form for the Vaccine Taker Information table. At first, we clicked create option, after that click on the Form Wizard button. Then open new windows- table/ Queries. After that, in Queries option and select all fields from the Vaccine Taker Information table by click on the next>> option. In layout option, we select - columnar radio option & Clicked next option. Then rename the form name – (Vaccine Taker Information) and selected the Modify the form design & click the finish option.

The screenshot shows the 'Form Wizard' dialog box. The title bar reads 'Form Wizard'. The main area contains the text: 'Which fields do you want on your form? You can choose from more than one table or query.' Below this, there is a dropdown menu labeled 'Tables/Queries' with the text 'Table: 2 Vaccine Taker Information'. Underneath, there are two columns: 'Available Fields' (an empty list) and 'Selected Fields' (a list containing 'VaccineTakerNumber', 'VaccineTakerName', 'Age', 'Gender', 'Address', 'NID_Number', and 'Telephone'). Between these columns are four arrow buttons: '>', '>>', '<', and '<<'. At the bottom of the dialog, there are four buttons: 'Cancel', '< Back', 'Next >', and 'Finish'. The 'Next >' button is highlighted with a blue border.

Figure 22; Vaccine Taker form

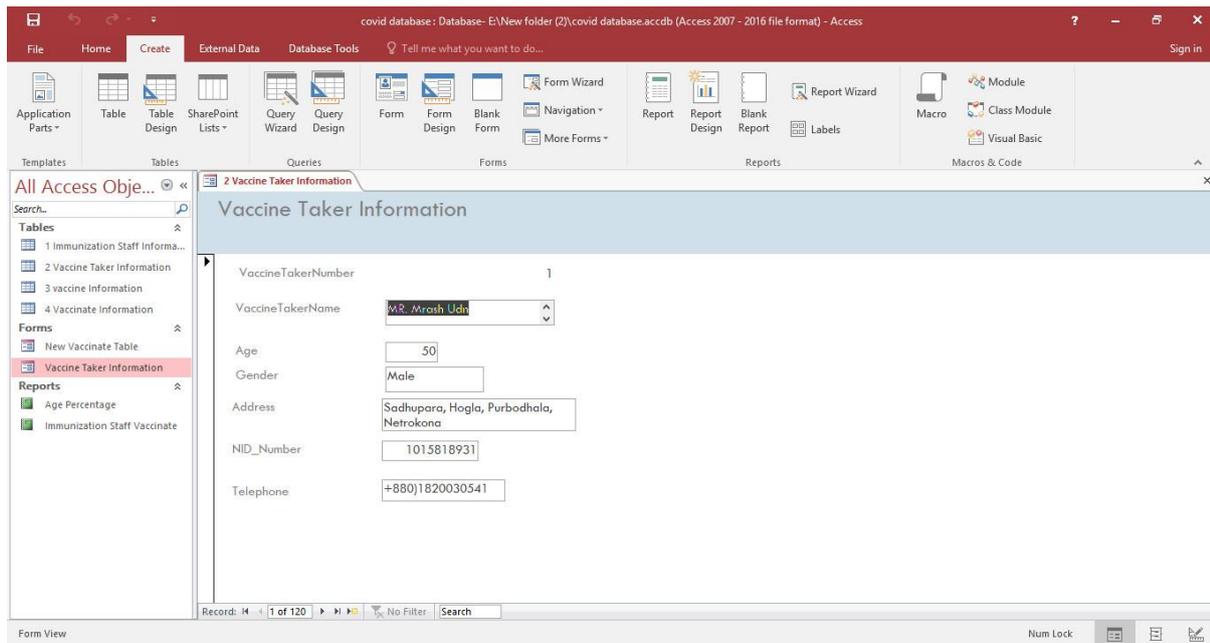


Figure 24; Vaccine Taker form

Now we need to create second form which is called New Vaccinate form. Now we need to clicked on the create option, after that clicked on the Form Wizard button. After that we need to open Queries option, then chose the Vaccinate Information Table and select available all fields and now we need to click on the next option. For layout option, we need to select the Columnar radio button & Click the Next button. Then we have entered New Vaccinate Information and selected the modify the design tab & clicked on finish option. Now, we need to set all of the properties, from the property sheet like this-

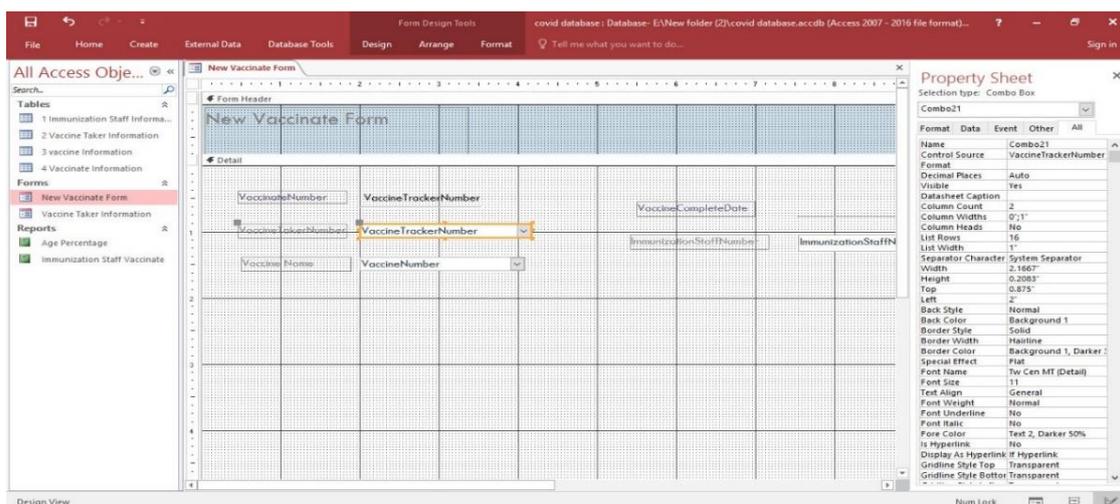


Figure 23; New Vaccinate form

After that, we need to add a combo box option. For selecting the Combo Box, we find it under the Design tab in the Controls section. For opening the Combo Box Wizard window, we need to drag & outline and proper location for the object. “Now we need to get value from another table or query select combo box option. After that we click next option. For the table or query question, we have selected Customer Table and click on the Next button. By using next option, we need to add VaccineTakerNumber & VaccineTakerNumber after that we need to Click the Next button.” [4] This property sheet selects apprised property after that saves the forms. New Vaccinate form like this screenshot-

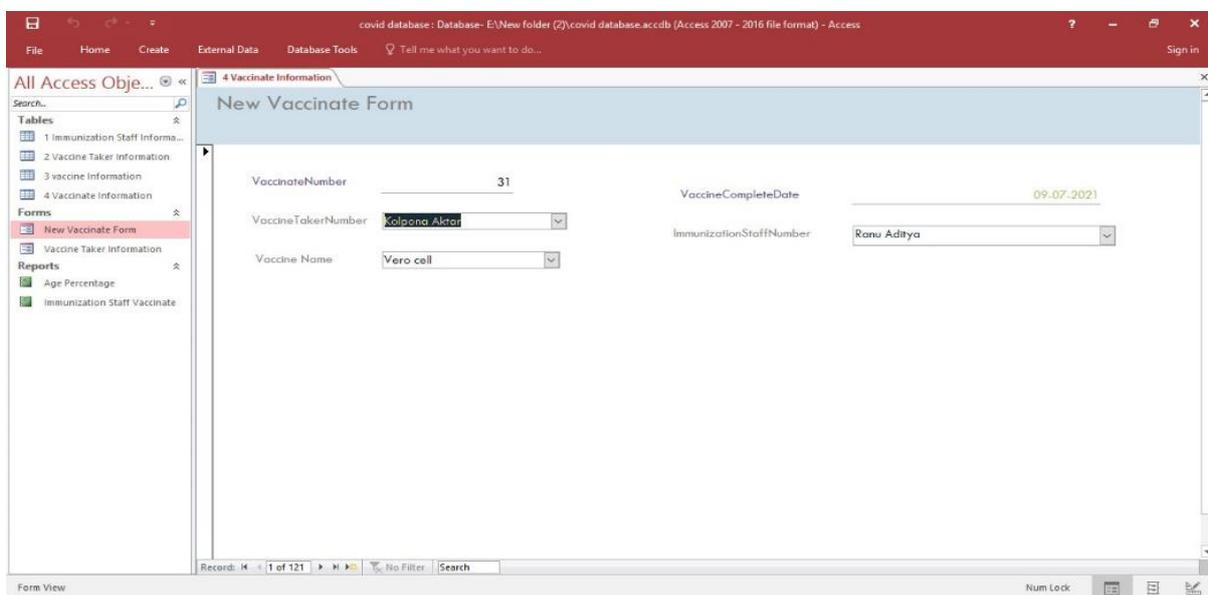


Figure 25; New Vaccinate form

Part-Six

8 Report Generate:

It is the last part for Ms. Access database. In this part we create two report. In one report we can see how many people are vaccinated in one immunization staff. Another one is age percentage. Create immunization staff vaccinate report, we need to click create option. After that click on report wizard window. After that in Immunization Staff Information table select ImmunizationStaffName, in Vaccine Taker Information select- VaccineTakerName, Age, Address and select next>. How do you want to view? In this option select Immunization Staff Information and clicked next> again click next>. After that ascending option select one by one VaccineTakerName, Age, Address. After that click next > and select layout- stepped, orientation- portrait then click next. Now if need then rename the report name & select modify design and click finish button.

Now in design view window, ImmunizationStaffNumber footer we need to add a combo box and write down =Count([VaccineTakerName]). And in report footer write down =Count([VaccineTakerName]). In the property sheet write appropriate property like this screenshot-

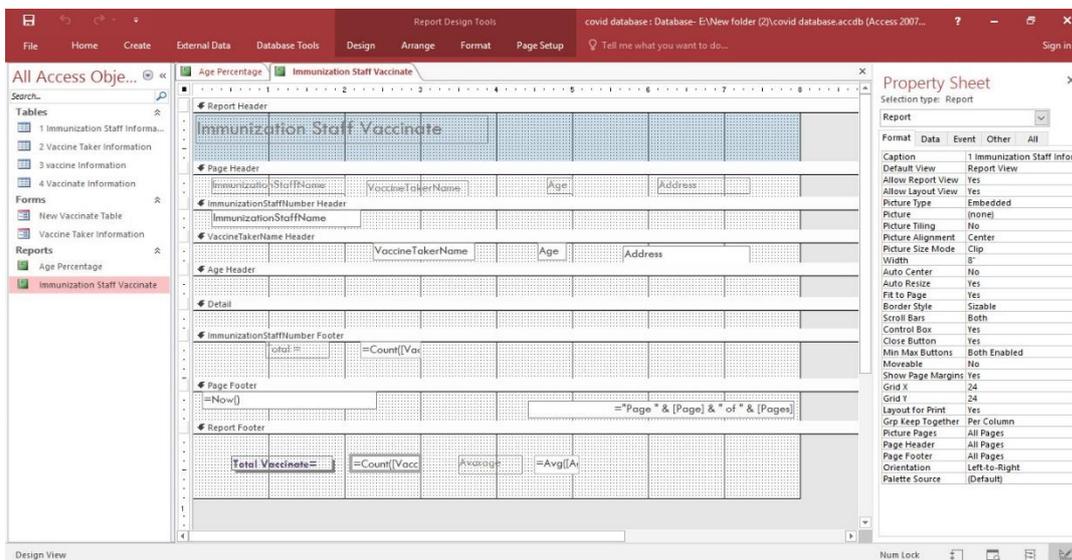


Figure 26: Immunization Staff report

The report view like this-

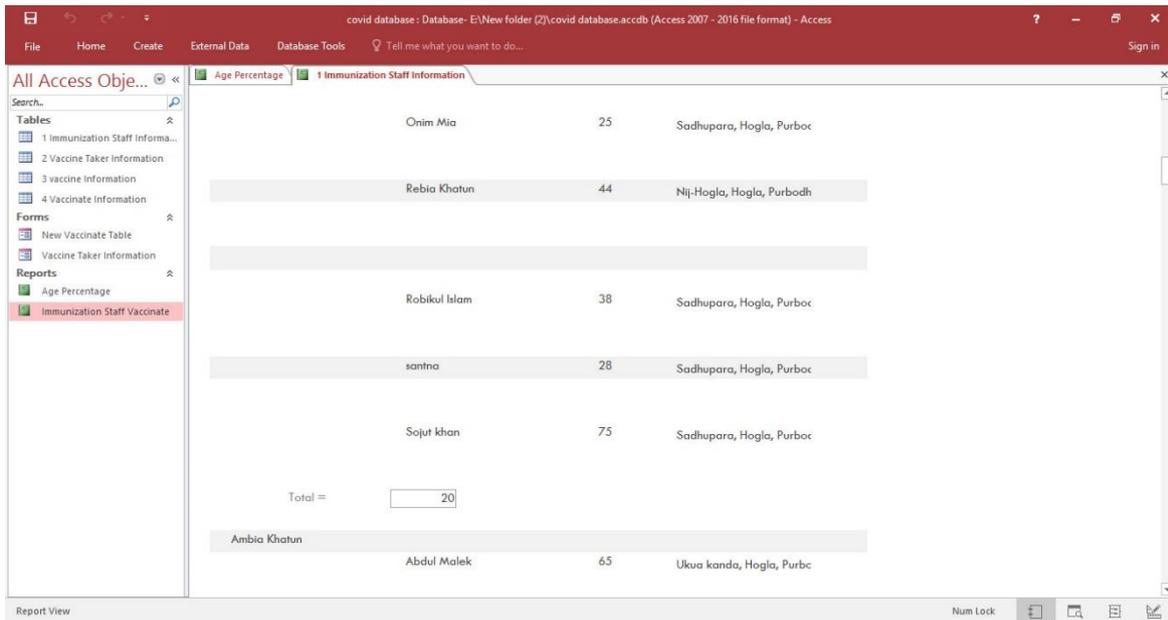


Figure 27; Immunization Staff report

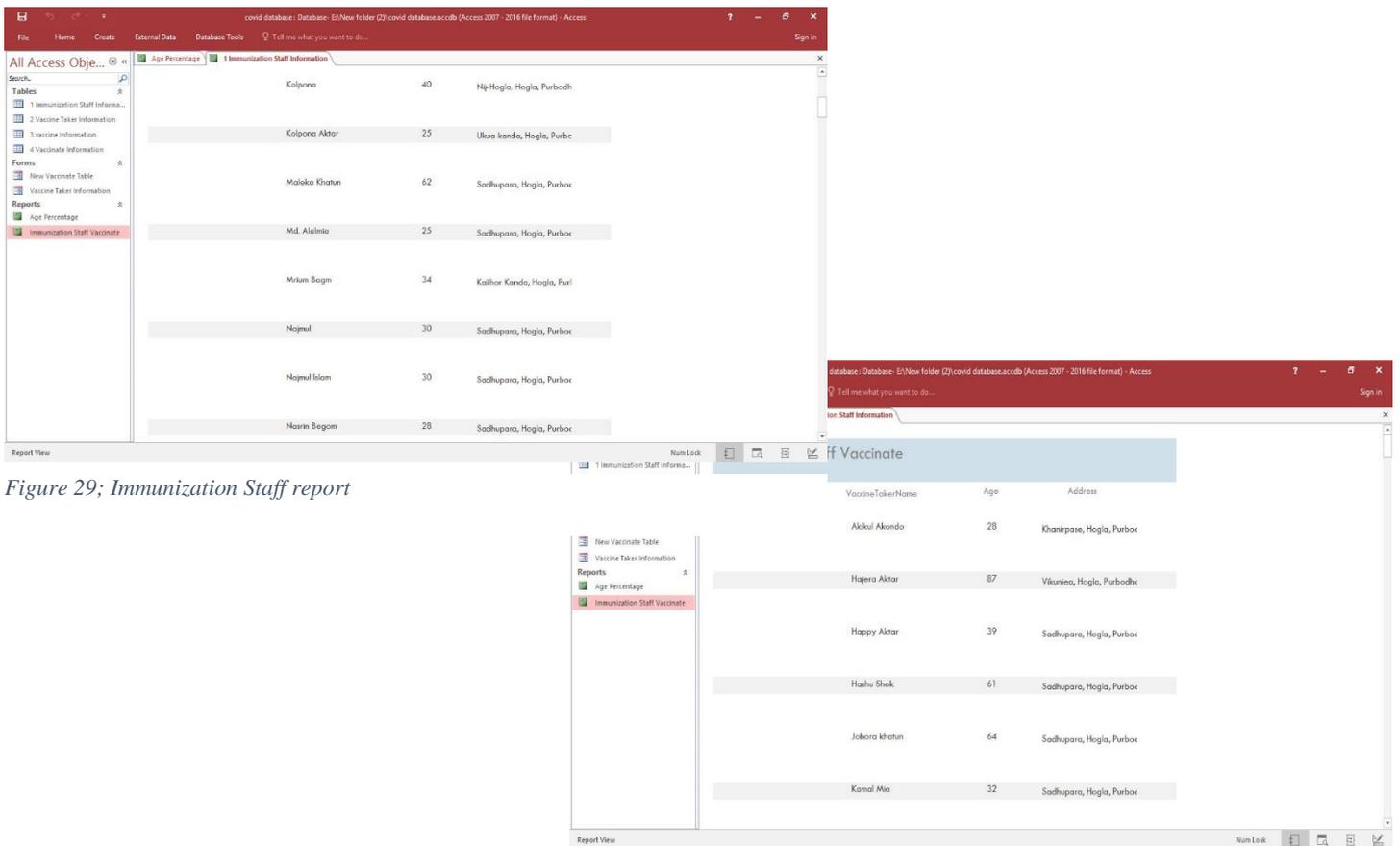


Figure 29; Immunization Staff report

Figure 28; Immunization Staff report

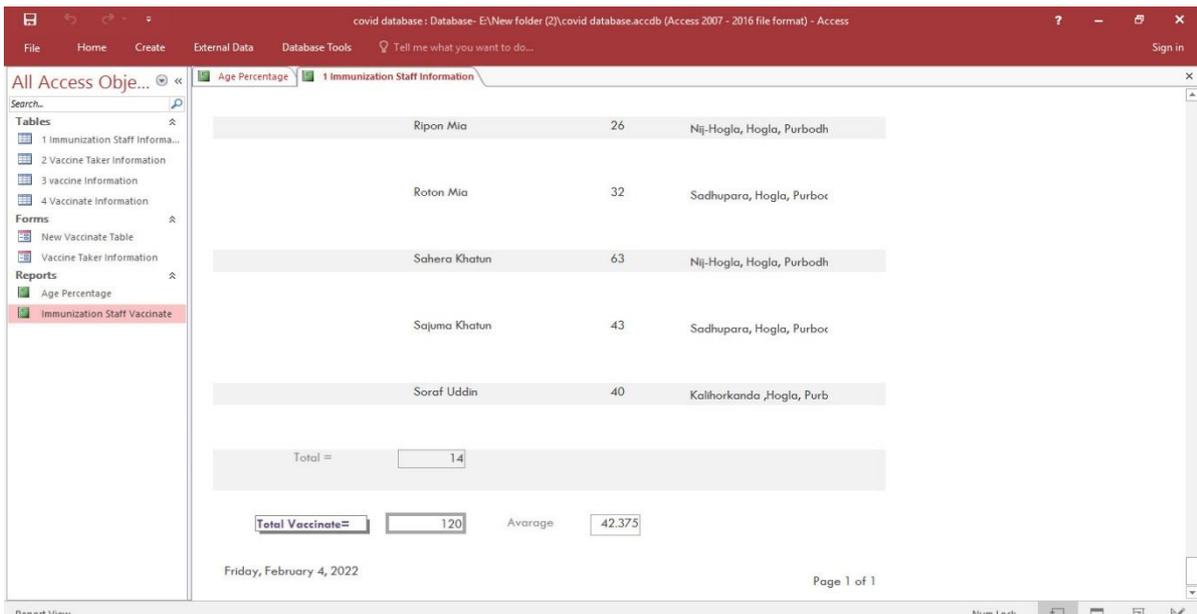


Figure 30; Immunization Staff report

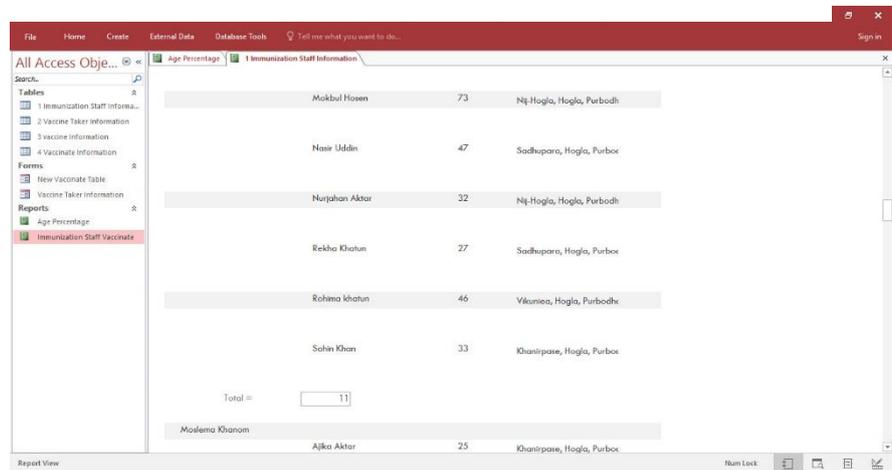


Figure 32; Immunization Staff report

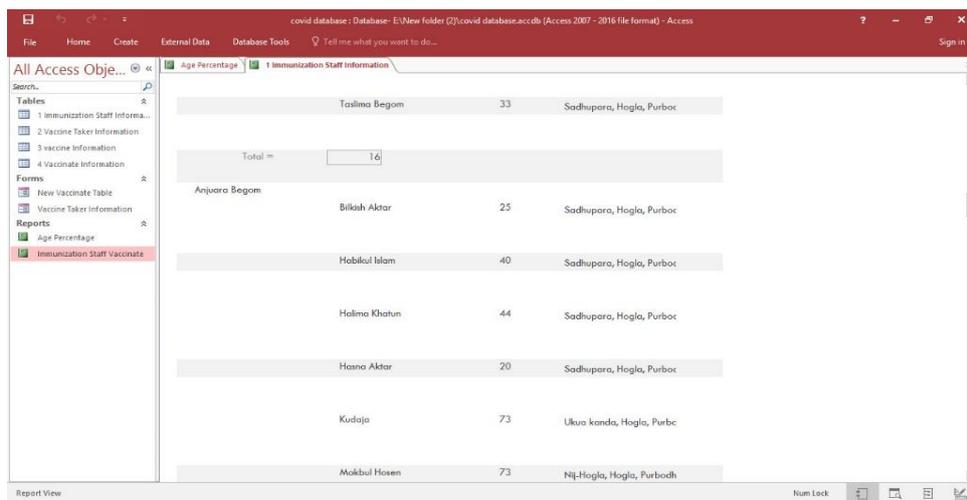


Figure 31; Immunization Staff report

We know that in 2nd report we input percentage of vaccinated. In this report we can understand 90% people vaccinate age 36. And elder people are demotivating for vaccinate.

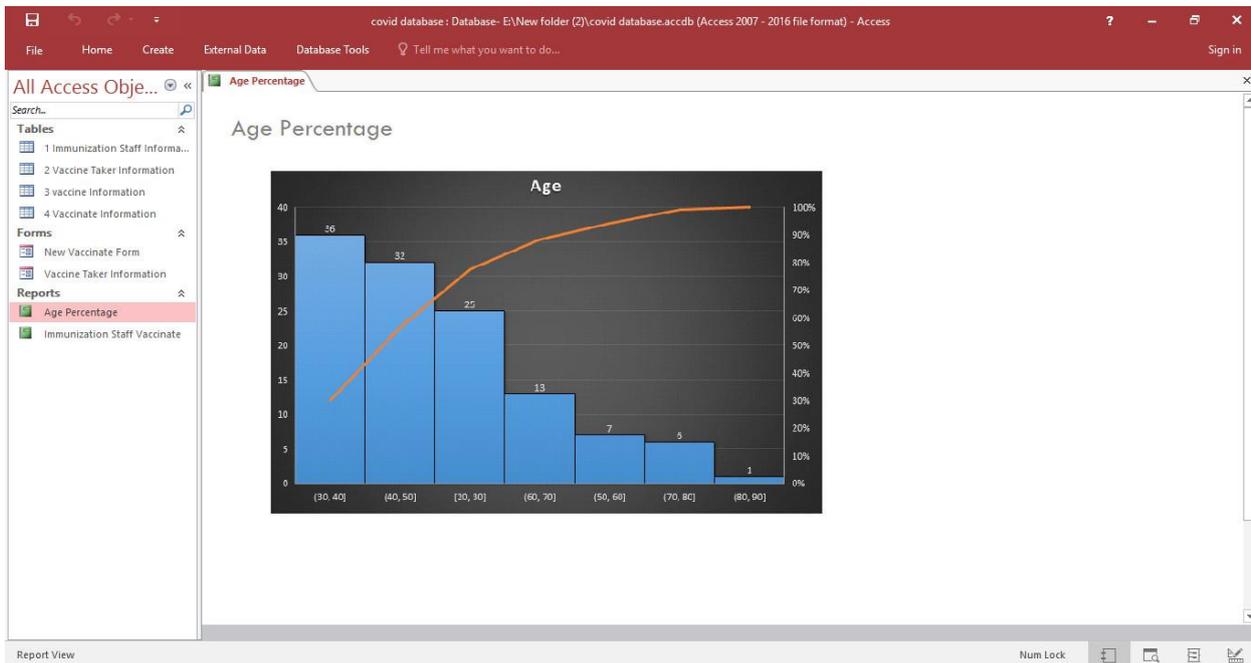


Figure 33; Age Percentage

9 Conclusion:

The relational databases management system is better, faster, stronger, and enrich for work by the time. But in this system it also excessively complex & by the time, database administrator job transfers into full time job. By using their valuable experience database administrator develop and innovate creative database applications. For their successful achievement create extra value in corporate sector or any office work. Database administrators need to expend more time for maintain this database & if we need to optimize batter performance of the database. By the time relational database have gotten better, firster, stronger and work friendly. People are use autonomous technology for building upon the strength of relational database. Cloud base are smart Machin learn to new type of relational database opportunity.

Suggestion for future research :

In future research I want to work with a large database. And It will be an online-base data store system. There are no rustications, if anyone wont to use my database for future research.

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