

# **SMART TOUR GUIDE**

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A Project  
In  
The Department  
Of  
Computer Science and Engineering



Presented in Partial Fulfillment of the Requirements  
For the Degree of Master of Science in Computer Science and Engineering  
United International University  
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## Approval Certificate

This project titled "**Smart Tour Guide**" submitted by **Raihan Sadeq**, Student ID: 012161004, has been accepted as Satisfactory in fulfillment of the requirement for the degree of Master of Science in Computer Science and Engineering on 7<sup>th</sup> April, 2019.

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## Declaration

This is to certify that the work entitled “**Smart Tour Guide**” is the outcome of the research carried out by Raihan Sadeq, ID No.: 012161004 under the supervision of Dr. Mohammad Nurul Huda, Professor and Director, Master of Science in CSE (MSCSE) Program.

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In my capacity as supervisor of the candidate’s project, I certify that the above statements are true to the best of my knowledge.

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## **Abstract**

Currently tourism is the main source of raising the economic level and it is the most popular industry in the world. Most of the countries have been able to tread rapidly the evolution in this sector, by maintaining their resources (natural, historical heritage and the nature of its climate). Tourism today is a fast growing activity and it's an industry managed by professionals from renowned global brands to one man micro enterprises. Competition among tourism service providers has led to raising the bar in terms of facilities available to the tourists.

Technology is a big help for those who wish to sneak out time from busy routines and still remain connected. Further being from a different context, they have limited access to the life of local community. In a different context with a different setting built environment & natural environment within limited time and limited resources.

Smart Tour guide is a bridge to those tourists who want to use their time properly for a tour by themselves.

## **Acknowledgement**

This project would never been accomplished without the help of my trainers, colleagues, friends and relatives and I would like to express my deepest thankfulness to all of them. First of all, I would like to thank my supervisor, Prof. Dr. Mohammad Nurul Huda for giving me the opportunity to work under his supervision and also for his support, guidance and encouragement throughout this work. I also want to give thanks to the Department Master of Science in CSE (MSCSE) Program, United International University (UIU) for providing me the facilities. My special thanks should be goes to Moshiur Rahman the Software Program director of Sonali Information and Technology Ltd. for his wisdom, patience and understanding. I also would like to thank my trainer of BASIS and my entire classmates who completed the course on Mobile application design and development with me. I also want to thank them who gave Investment with supporting and providing all the necessity to accomplish this work. I also would like to express my real acknowledgement and deepest thanks to my dear lovely family, for their endless patience, love, support, understanding and encouragement in the most difficult period in my work.

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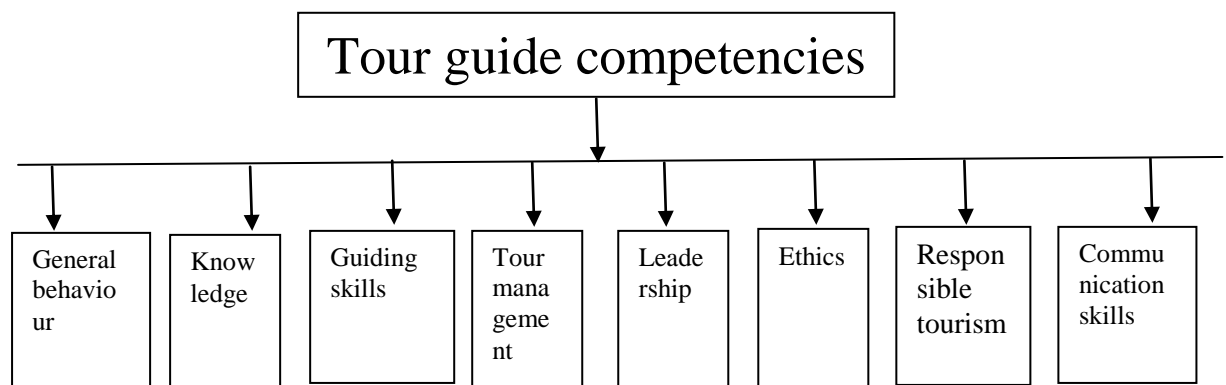
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# Chapter 1

## Introduction

Nowadays people travel around a world pretty regularly. They have many different reasons and interest to travel around the countries, some individuals prefer to join with group of people with the tour guide. I totally agree with the statement, people traveling in group with tour guide is the best way to travel. They have a many professional agencies with the tour guides organize the travels and make them satisfied. There are many advantages for traveling in group with tour guides. For example you can have a direct communication with your guide and express your feeling with other tourists. You can also learn some experience and make a new friends from other tourists. You do not need to worry about booking hotels and restaurants etc. Most people travel to different countries around June to September because they rather warm weather. If you look for statistics most tourists are from Europe, America or Australia either well developed countries. They mostly travel about almost every year. It is a good feelings and reduce a stress if you travel to see new place ones a year. But some people rather to travel by themselves because they aim to spend less money. As a result they had a pretty good time and once they got back home found out they missed many beautiful spot which they should checked out.

A tour guide has a lot of competencies (skills, knowledge and way of behaving)



**Figure-1: Tour guide competencies**

## **Chapter 2**

### **Background and Literature Review**

#### **2.1 History**

One of the oldest professions In the Western world is tour guiding. The tour guiding system and its history was divided into mainly four portions or periods in 1993. There are a lot of references to justify this era's. This four periods of tourism are from Roman Empire to the Middle Age also from the renaissance and into the Modern Age. This periods are briefly described below

##### **2.1.1 First era of tourism**

The first major development of tourism came in the period of the powerful empires. From 3000 B.C. to A.D.500 between this era's travelling is risky and very much time consuming. On that period the ancient Persians, Assyrians and Egyptians explore to travel through land and water as lack of tourist guides. This scenario is still increasing as tourists want an expert to guide them one the way of their journey so that they can reach their destination in the shortest time and also safety was an issue.

##### **2.1.2 Second era of tourism**

At the time of between the fall of Rome and before the Renaissance was the second period of tourism. This is the middle Age which was approximately from A.D.500 to 1500. On that time, the most comprehensive type of tour was religious pilgrimage which mainly followed by middle and the upper classes. On the other hand lower class people were deprived from all of this programs. When Rome falls its changes all the scenario of economy and the social order. After that the preference of the tour guides raises so much because of the safety and security of the travelers came to be a concern.

### 2.1.3 Third era of tourism

The third period of tourism started approximately during A.D.1500 to around 1700. Between this renaissance periods a lot of tour system established. This tours were created by the first class youth which is called as “Grand Tourists”. This tours decorated for cultural and educational reasons. In this tours the tourists try to enlarge their knowledge and expect long time journeys so that they can cover large areas by taking the help of the tourists. The cicerone, named after Cicero the most honored guide in European society. The tour guide was expected to be experts for that they needs to have knowledge in many subjects, articulate and multi-lingual.

The background of smart tour guide specifies below:

- I. As tourist are belongs from a different cultural background, so they always want to have a different thinking which is so much natural.
- II. Tourist looks for an expert’s advice for a flawless tour and non-break problems so that they can enjoy the visited place.
- III. Smart tour guide therefore have to be smart enough to not only describe them about the destination but also to feel them and encourage them for the destination so that they can be excited for their tour.
- IV. The smart tour guide can create scenario even before the tour and correct information for the tourists that’s why a ‘Smart tour guide’ is also called as a Smart tour planner.
- V. In present state one can get a brief details of tours in Bangladesh but in future versions visitors will get details of foreign countries also.

### 2.2 Equations

Let the equation which relates total daily tourism expense,  $Y_t$ , to the total number of tourists,  $X_t$ , and the average daily expenses by tourists,  $Z_t$  :

$$Y_t = X_t \times Z_t. \quad (1)$$

As there is little proof to guide that the average daily expenses by tourists,  $Z_t$ , changes on a daily basis,  $Z_t$  can be replaced by a constant,  $c$ , so that equation (1) can be replaced by the following:

$$Y_t = c \times X_t. \quad (2)$$

From equation (2):

$$\Delta Y_t = c \times \Delta X_t, \quad (3)$$

Where  $\Delta$  is the first difference operator, namely  $\Delta A_t = A_t - A_{t-1}$ . For a variable  $A_t$ , such that  $\Delta Y_t$  is the change in total daily tourism expenses, and  $\Delta X_t$  is the amount of the net daily tourist appearance, so the total number of daily tourist appearance minus daily tourist exit.

Using the lagged version of equation (2) to divide the left-hand side of equation (3) by  $Y_{t-1}$  and the right-hand side of equation (3) by  $c \times X_{t-1}$ , leads to:

$$\Delta Y_t/Y_{t-1} = \Delta X_t/X_{t-1}, \quad (4)$$

Which, in turn, leads to the following Proposition regarding the fundamental equation in tourism finance:

**Proposition:** Equation (4) gives the fundamental equation in tourism finance, and relates the growth in total daily tourism expenses, or alternatively the daily returns on total tourism,  $\Delta Y_t/Y_{t-1}$ , to the net daily tourist arrivals divided by the previous day's total number of tourists,  $\Delta X_t/X_{t-1}$ .

The variable which may be followed on a daily basis in the fundamental equation (4) is  $\Delta X_t$ , which is the change in the net daily tourist appearance. The initial purpose of tourism authorities in the public and private sectors is to achieve increasing daily returns on total tourism, which can be accomplished by increasing  $\Delta x_t$ , that is, encouraging increasing net daily tourism. As  $X_{t-1}$  might not be available, the following section provides a method for calculating the variable to make the fundamental equation operational.

### 2.3 Tables

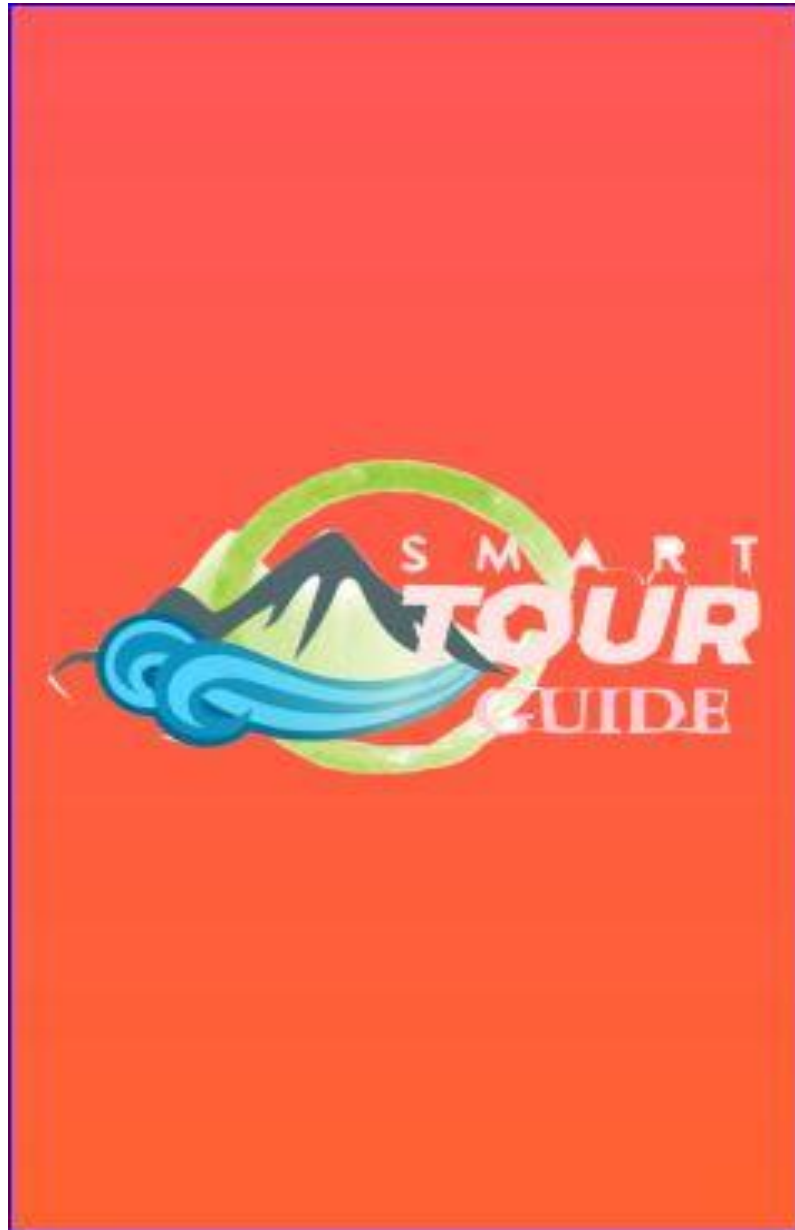
The accuracy of the GPS given in the table is much similar to this project. For more accuracy we can use DGPS but for now we don't need to use it as we already get a better accuracy. Because of cost of using DGPS is so high it won't be cost efficiency right now. It may be give us more accurate result but as it is so expensive it won't be a good decision to use it right now. The equipment needed for DGPS are too much expensive and those are so heavy in case of weight. The standard deviation of the mean values of GPS and DGPS and the difference between the GPS and the DGPS standard deviation are shown in Table-1 in meters. In a research we found that, a DGPS capable device is ~50% more accurate than a GPS capable device. If needed in the future, this project has the option of providing a more detailed tour expo giving the user smaller and more defined attractions to view.

**Table-1: Standard derivation, measured in meters**

|            | Longitude | Latitude | Elevation |
|------------|-----------|----------|-----------|
| GPS        | 3.18m     | 4.23m    | 16.73m    |
| DGPS       | 1.18m     | 1.64m    | 3.93m     |
| Difference | 1.36m     | 2.59m    | 12.80m    |
| Percentage | 43%       | 32%      | 77%       |

## 2.4 Figures:

When the app starts this activity appears. This is the 1<sup>st</sup> activity of Smart Tour Guide.



**Figure-2: User interface of smart tour guide**

**This is the navigation activity of the app where Home & Weather menu situated. In future more menus will be added as per the requirement of the app.**



**Figure-3: Navigation bar of project**

The main activity of this app is this. Total tours plan can be made here by the tourists.

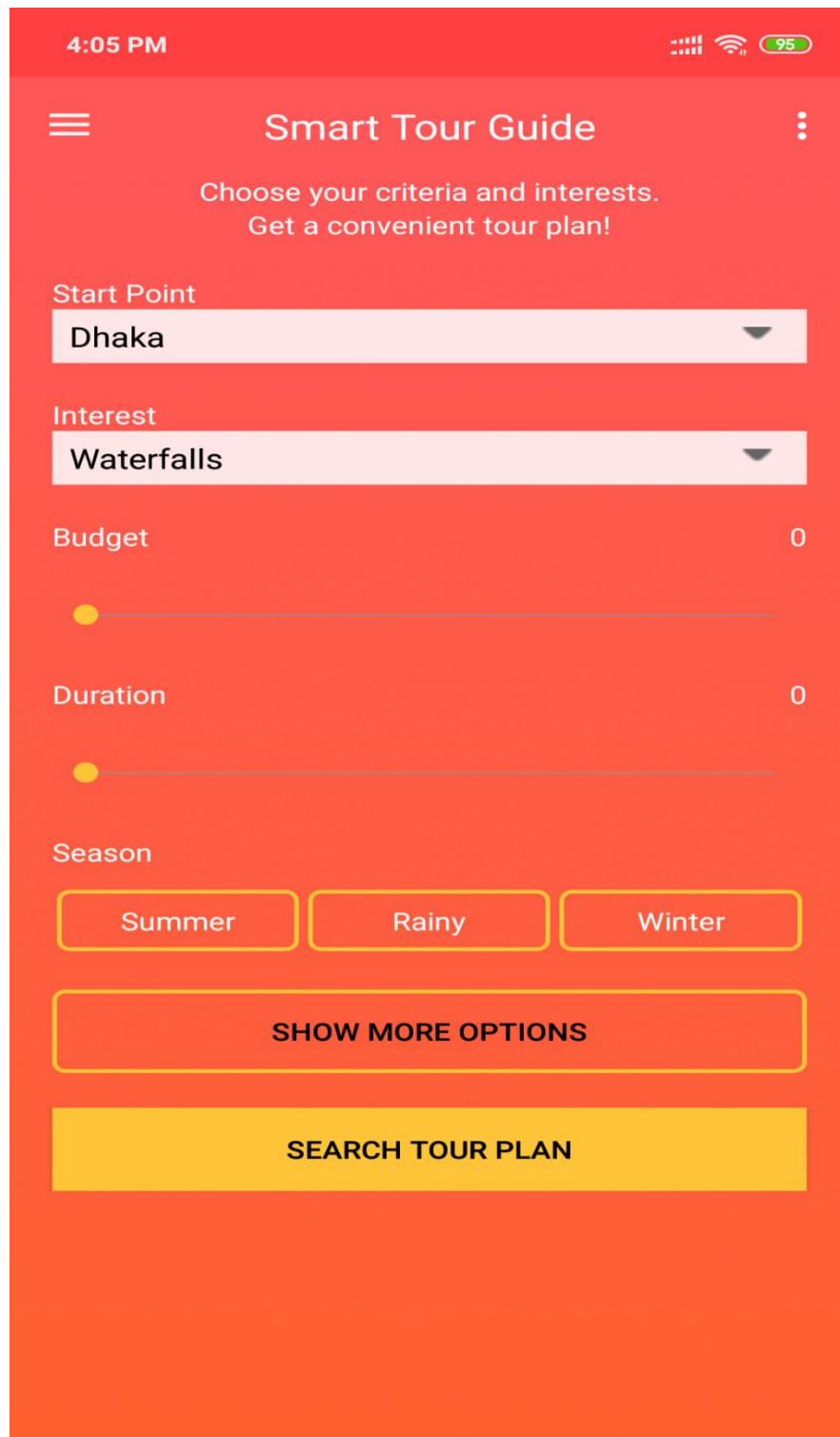


Figure-4: Main page of the project

Here about section given where apps version, copyright, developer and contact is given.

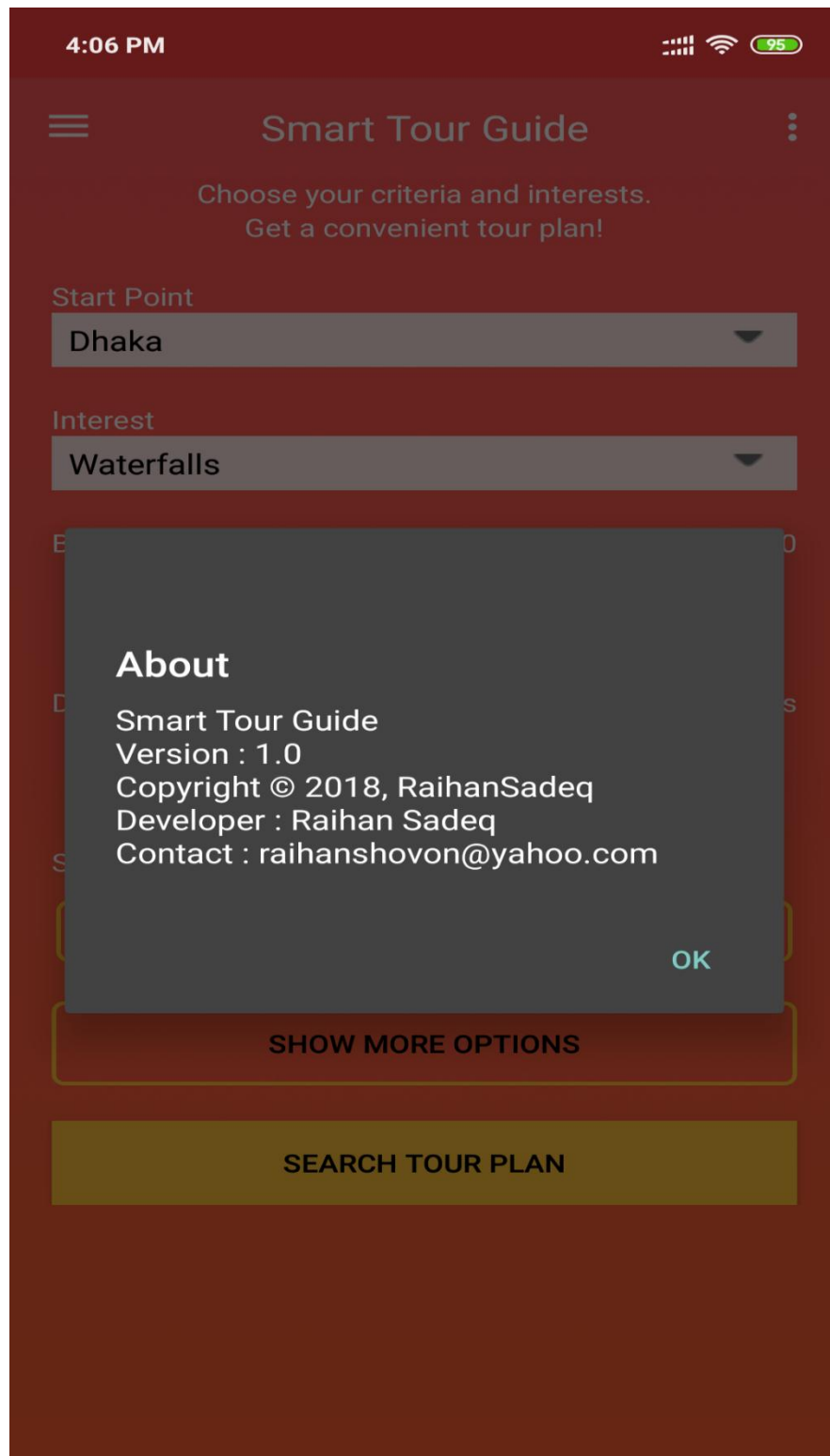


Figure-5: About page of the project

## Chapter 3

### Methodology

The tour guide and tourist must not do things that can damage or harm the environment in any way.

**Table-2: The Environment**

| Do's  | Don'ts  |
|---|---|
| <ul style="list-style-type: none"><li>• Only take photos</li><li>• Only leave footprints</li><li>• Buy souvenirs or products made from local and renewable products</li><li>• Keep litter in the vehicle to throw away in a proper garbage can</li><li>• Pick up your rubbish, and even someone else's!</li></ul> | <ul style="list-style-type: none"><li>• Take natural items as souvenirs: shells, rocks, plants, animal products</li><li>• Buy wildlife products, especially from endangered animals (these are animals that have very few left in the world and in Laos)</li><li>• Leave anything behind, like rubbish in any form! No water bottles, Coke/ cold-drink cans, cigarette butts, chewing gum, snack packets, etc.</li><li>• Damage the natural environment: break trees, pollute water sources</li><li>• Throw anything out of the vehicle!</li><li>• Waste water</li><li>• Leave electrical equipment running – lights, fans, air-conditioners, etc. where no one needs them straight away.</li></ul> |

Whatever you do, you and the tourists must always consider the local people, their needs, their culture, and their way of life. A tour guide should guide the tourists in the most proper behavior to respect the culture and not upset the people of Laos. These guidelines show you how to behave. Share and tell these to tourists so that they know what to do to not upset or confuse local communities.

**Table-3: The Tourist**

| Do's  | Don'ts  |
|---|---|
| <ul style="list-style-type: none"> <li>• Dress and behave in a way that shows respect for the tour site, especially temples, religious sites or ceremonies</li> <li>• Dress neatly and moderately (don't show too much skin). Dress is important and first impressions count and tell people what to think of you.</li> <li>• Ask before taking photos of people and sites</li> <li>• Buy new, quality, handmade products and not items that belong to the heritage (history) of the country</li> <li>• Report sex tourism, especially with children</li> </ul> | <ul style="list-style-type: none"> <li>• Give treats or money to children begging</li> <li>• Hug and kiss in public, or touch any people without permission</li> <li>• Touch sacred items or sacred sites without permission</li> <li>• Buy antique Buddha's or sacred items</li> <li>• Promote or engage in sex tourism, especially with children</li> </ul> |

## **Need to respect local culture**

It is important for Tour Guides to show tourists how to show respect local culture for the following reasons:

- Meet expectations of tour group members;
- Meet the advertising promises made about the tour;
- Help lower negative impacts of tour on local communities;
- Teach tourists about the country, area and communities;
- Show respect for sacred sites of the local area which are important to local people; and
- Develop a good relationship with the local community and the tour company/ tour groups by always showing respect for beliefs, customs and other important parts of the culture.

## **Ways to show respect for local culture:**

- Respect and follow any arrangements that a Tour Operator has made between them and local communities – about what tourists can and cannot do in the community
- Ask permission from locals – before doing certain things:
  - Never just think that it is OK
  - Always ask before you do something
- Always use common sense – but if not sure, do whatever is best for the community or local people;
- Understand the local culture so that you can explain it properly - many tourists might understand or believe things about the culture differently;

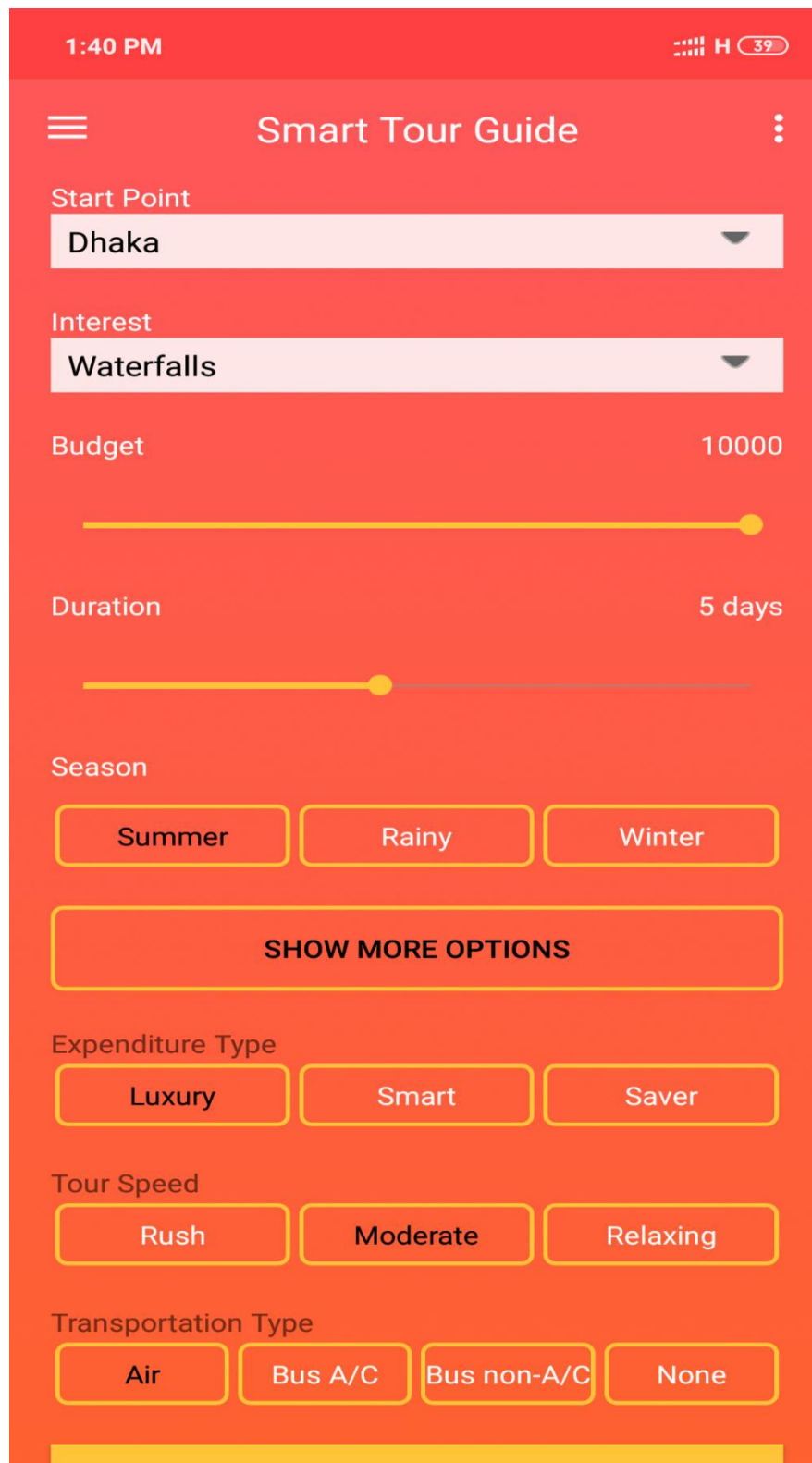
- Tell short personal stories to help tourists understand the local culture better;
- Lead by example – What you does an example for tourists as they will follow/copy what the leader does;
- Be sensitive to issues about culture – for example:
  - Gender
  - Age
  - Dress
  - What to call people
- Keep secrets about certain things that locals do not want ‘outsiders’ to know about; (private things) and
- Support the local community – which may involve:
  - Pay entry fees or other fees to local communities;
  - Buy goods and services from locals;
  - Encourage visitors to buy from the locals; and
  - Use a guide from the local community to help do local tours of certain areas.

## Chapter 4

### Results

The guide may contribute even at the preparatory stage by (co-)creating the scenario (as an author, historical consultant, advisor in matters related to sites). Then, during the actual tour the guide may (and usually does) play the main part (the protagonist of the story), or he/she may take over the part of one of the characters in the scenario, at some point “giving up” the part of the narrator, and join the plot as it is executed by the remaining members of the crew. This happens mainly if the storyline-based component constitutes only a part of the tour, which besides that is carried out as sightseeing with a guide wearing period clothes. In a situation when other actors play the participants of events, the guide may also continue as a narrator (and then he/she can be made up as a chronicler or witness of the events). In an advanced type of dramatized tour the guide may be a “neutral” observer, unobtrusively supervising the progress in the scenario and prompting the participants to play their parts (so in a way operating “from the crowd”). In the latter case, if the visitors in accordance with the tour scenario are expected to perform some tasks, the guide may also take on the role of an “expert” helping the group in dealing with such challenges. So without a smart tour guide ones tour can't be said as completed. As a result for every tour a smart tour guide is mandatory.

In smart tour guide there are three interest points added initially which are ‘waterfalls’, ‘hills’ and ‘sea-sides’. Here budgets tour duration can be added including seasons. Also there are some more extra options which are expenditure type, tour speed and transportation type. Some project forms and its reports are added here:



**Figure-6: Waterfall tour plan**

1:40 PM H 39

Smart Tour Guide

Dhaka

Interest

Waterfalls

Budget 10000

Duration 5 days

Season

Summer Rainy Winter

SHOW MORE OPTIONS

Expenditure Type

Luxury Smart Saver

Tour Speed

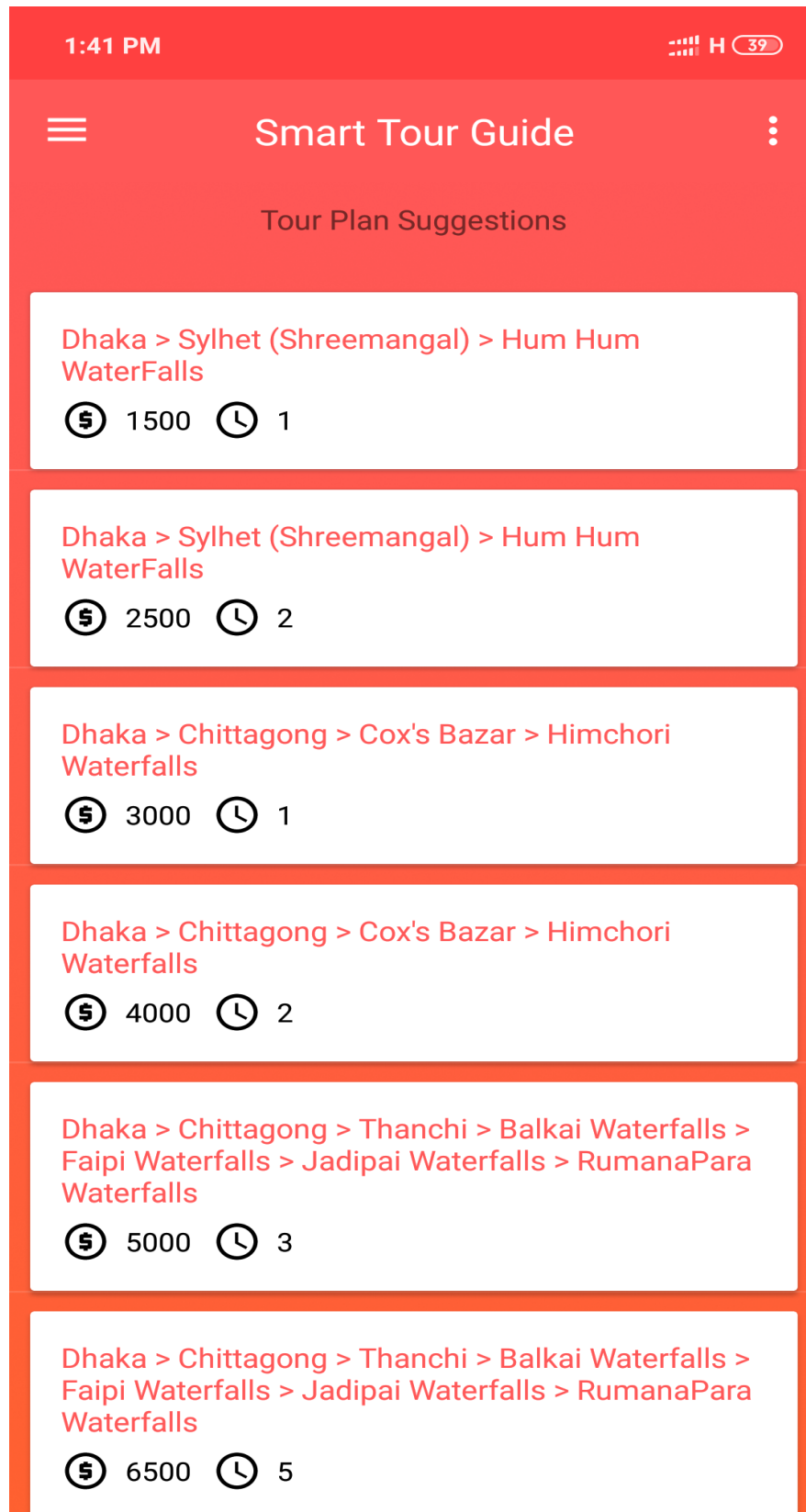
Rush Moderate Relaxing

Transportation Type

Air Bus A/C Bus non-A/C None

SEARCH TOUR PLAN

**Figure-7: Waterfall tour plan full**



**Figure-8: Waterfall tour plan suggestions**

1:41 PM H 39

**Smart Tour Guide**

**Dhaka** ▾

Interest  
**Hills** ▾

Budget 10000

Duration 7 days

Season

Summer  Rainy  Winter

**SHOW MORE OPTIONS**

Expenditure Type

Luxury  Smart  Saver

Tour Speed

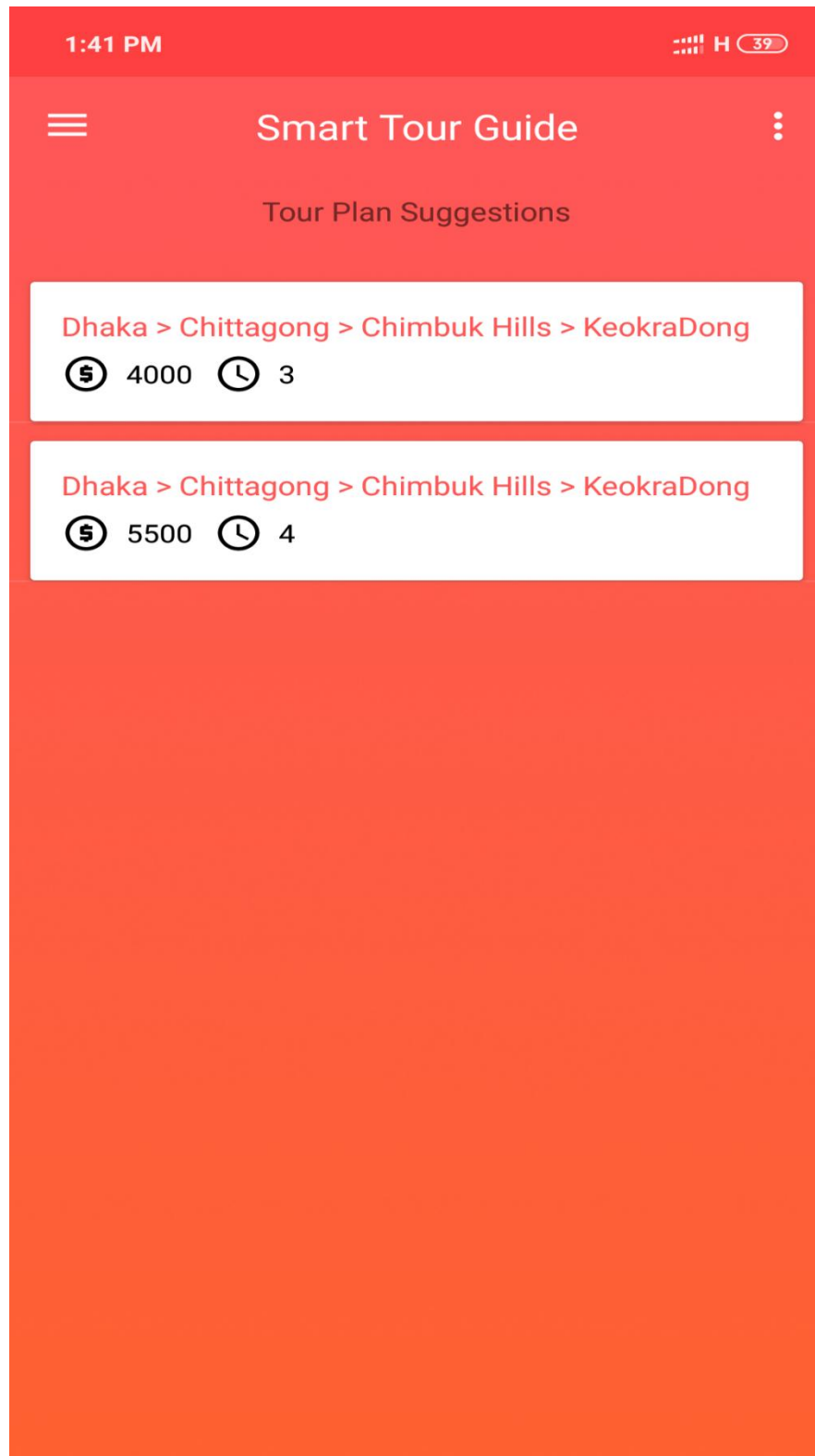
Rush  Moderate  Relaxing

Transportation Type

Air  Bus A/C  Bus non-A/C  None

**SEARCH TOUR PLAN**

**Figure-9: Hills tour plan**



**Figure-10: Hills tour plan suggestions**

1:42 PM H 39

**Smart Tour Guide**

**Dhaka** ▼

**Interest**  
**Sea Side** ▼

**Budget** 10000

—————●

**Duration** 10 days

—————●

**Season**

**Expenditure Type**

**Tour Speed**

**Transportation Type**

**Figure-11: Sea side tour plan**



**Figure-12: Sea side tour plan suggestions**

## Chapter 5

### Conclusion and Future works

**5.1 Conclusion:** We have to remember that, regardless of the ability to use advanced tools, the profession of the guide will continue to exist only if those performing such work manage to provide tourists with that which cannot be delivered by machines or artificial intelligence. These incontestable assets of the guide (preferably, supported with the most advanced and adequately selected methods and tools) are and will always be his or her unflinching enthusiasm and authenticity of a real person representing a place as well as the truly complete “interactivity” expressed by lively and immediate feedback provided to the tourist, listening and asking questions here and now.

**5.2 Limitations:** In this project there are some limitations which may be overcome in future. Right now this is the first version of the app. These limitations are fixed language, unwanted service, lack of flexibility, and limited interactions with locals.

**5.3 Future Work:** In next version there will be extra features added. Right now there are some limitations which can't be avoided but in future work these limitations will be minimized. There will be multi-language option so that people from many cultures can use it very easily. There won't be any unwanted service so that customers can be satisfied. There will be a special focus on future packages that there will be fixed guidelines so that no confusions face by the tourists. Also in future packages there will be more interactions with the local community.

## References

Some resources which uses in this project are given below

[1] The new Boston videos:

<https://www.youtube.com/watch?v=QAbQgLGKd3Y&t=345s>

[2] Java a Beginner's Guide: <https://www.amazon.com/Java-Beginners-Guide-Herbert-Schildt/dp/0071809252>

[3] Core Java learning site: <https://www.studytonight.com/java/>

[4] UI/UX pattern learning: <http://ui-patterns.com/patterns>

[5] The Complete Android N Developer Course:

<https://www.youtube.com/watch?v=NSZ0InOXWb4>

[6] Android development: <https://basis.org.bd/>

[7] Java Tutorial: <https://www.w3schools.com/java/default.asp>

[8] Research Gate: <https://www.researchgate.net/>

[9] Running Android on the Raspberry Pi.: <https://www.slideshare.net/>

[10] Learning Design Services: <https://www.e-education.psu.edu/>