Style Guidelines for Final Year Project ReportsSmart Travel Planner

Final Year Project Proposal

Session 2017-2021

A 4th Year Student

A project submitted in partial fulfilment of the

COMSATS University Degree

Of

BSc. (Hons.)BS in Computer Science / Software Engineering (CUI)



Department of Computer Science

COMSATS University Islamabad, Lahore Campus

08 October 2020

**Project Registration**

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| --- | --- | --- | --- | --- | --- | --- | --- |
| Project ID (for office use) | | |  | | | | |
| Type (Nature of project) | | | [ ] **D**evelopment [ ] **R**esearch [●] **R**&**D** | | | | |
| Area of specialization | | | Data mining, Mobile application development | | | | |
| **Project Group Members** | | | | | | | |
| Sr.# | Reg. # | Student Name | | CGPA | Email ID | Phone # | Signature |
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| Name & Signature of Batch Advisor  (If students are eligible for FYP) | | | |  | | | |

# Plagiarism Free Certificate

This is to certify that, I am Abbas Ali S/o Muhammad Ashraf, group leader of FYP under registration no CIIT/FA17-BCS-087 /LHR at Computer Science Department, COMSATS Institute of Information Technology, Lahore. I declare that my FYP proposal is checked by my supervisor and the similarity index is \_\_10\_\_\_\_% that is less than 20%, an acceptable limit by HEC. Report is attached herewith as Appendix A.

Date: 8 Oct. 20 Name of Group Leader: Abbas Ali Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_

Name of Supervisor: Dr. Hamid Turab Mirza Co-Supervisor (if any): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Designation: Assistant Professor Designation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Approval of FYP Management Committee**

Committee Member 1: Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

[ ] Accept [ ] \*Defer [ ] \*Reject Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Committee Member 2: Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Convener: Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

[ ] Accept [ ] \*Defer [ ] \*Reject Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\*Remarks: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Project Abstract**

Trend of tourism is increasing day by day cross-culturally and spreading beyond borders and regions for the sake of exchanging ideas. Its scope is equally prevalent in Pakistan but meet the shortcomings in providing substantial information in locating different places which can met through designing a suitable app for this. Travelling is crucial in human race for recreation, exploring cultures, encountering different people and to see new areas of grasping knowledge that ultimately lead towards acme of self-growth and inner peace. That is what traveling provide you, a full chance to improve health and self-development. But at the same time travelling in Pakistan is under grip of many issues including lack of security in certain areas, most of hiking and landscape resorts are devoid of living and travelling facilities, lack of proper guideline of travelling areas for visitors and the constant sounds of security is still there. To deal with these problems, implementations and improvements on governmental as well as public/personal level are required. Our current government is paying a serious heed on improving the facilities of landscapes and tourist points to enhance tourism and the hopes of these efforts to bore fruits are quite high. On personal level, an app to help tourists in finding different in route tourist spots would be a great asset to add pinch of extra enjoyment before reaching to desired location. This system is akin to a working application like Roadtrippers.

**Introduction**

Travelling and seeing places is an important part of our lives. One cannot believe a place to be true unless one sees it. Anyone can visit any places around the globe but one cannot know the place he/she is going to visit is of his/her interest. This can cause major issues for the traveller. The traveller can see the photos and reviews of the place he/she going to visit but he/she have to go a tons of different platforms and website and have to ask questions to make sure he/she is going to visit the right place. This is very time consuming and take a lot of effort.

People nowadays prefer to travel only places, which are of their interest, they tend to have some prior knowledge of the place they are going to visit. The knowledge of the places can be get from social media and different travelling websites. However, when a random person travel he do not know the website to look for and social media accounts to search for. So, due to this reason he/she may not be able to explore the way he/she want to. Reviews can help to find out the latest trending places and to find out which place is best for them. Reviews affect many things of a place, it can affect the mind-set of a person visiting it, But one can travel unexpectedly that is having no knowledge of place whatsoever, There should be some mechanism to entertain all sort of travellers with proper knowledge and reviews so they can visit the places of their interests.

The Project will be a cross platform mobile app in which the user mention the route of travelling and app will suggest user the places of their interests in the mentioned route. The Project will work on a real-world example of the dataset. Data will be scraped of reviews, pictures of different places, suggest users only places which are in their routes, and match their interests. The Project will take help from social media accounts and travelling websites to have proper reviews and pictures. The Project will contain an AI recommendation model [1] to suggest places; there will be extraction of user behaviour and interests [2] according to their search history using supervised and unsupervised machine learning techniques. This way app can improve the overall experience of all sort of travellers whether he/she is a professional traveller and a random person the complete working of the proposed system is elaborated in Figure 1.

***System Architecture***

Deploy designed model

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Train and test model

Crawling & classifying

dataset

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**Data-Pre-processing**

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Converting reviews into model

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Extract User Behaviours

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Design AI model of recommendation

**Model**

**Client application**

User Interface/Mobile App

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***Figure 1: System Architecture***

**Date- Pre-processing**

Main aim of data pre-processing is to extract user behaviours. This is done by rearranging collected data. After performing set of operation user behaviours will be collected. Following sequence will be followed

* **Crawling and classifying**

In this phase, system willdocrawling of large amount of data. That data collected from different resources. After crawling, system will be classifying and re-arrange data in particular format.

* **Converting reviews into model**

System will collect reviews from different resources. In this phase system will make a proper model base on all reviews

* **Extract user behaviours**

In this phase, system will try to make pattern from all dataset. After pattern identification, User behaviours will be extracted.

**Model**

Main aim of data modelling is to train and test system model.

* **Design AI model of recommendation**

In last step, system will extract user behaviours. In this phase system will make AI model of recommendation based on extracted user behaviours format. There are many types of filtering model. System will apply content filtering model and then apply hybrid-modelling filtering.

* **Deploy designed model**

In this phase designed model will be deployed and check its accuracy. After experimental test, it will deploy to real world data.

* **Train and test model**

In last phase, data will be split train and test. system will first train by giving familiar set of data then test it by given unseen amount of data. K-fold validating algorithm will be applied.

**Client application**

In this phase, client-side application will be ready to deploy in real world

**Motivation and Scope**

Let us consider a user story to understand the motivation behind this project. Let us say that a person is travelling from Lahore to Islamabad, He has one complete day to travel and he is travelling all be himself. As, he has enough time to visit places of his interests, but he does not know the places worth seeing in his route. He goes to social media accounts like Facebook, Twitter, Instagram and surfs different websites to know the places in the routes. In this whole process, a lot of time is being wasted. He may have to ask few questions on social media about some place. Sometime also used in this process now, you can see how much valuable time of him is wasted and he has very less time to explore the places.

For that purpose, a need of well-mannered environment is necessary where user does not have to worry about the reviews and whether or not the place if of his interests because the app will have the capability to automatically detect user’s interests and suggest accordingly.

Scope of our project would be creation of cross platform mobile app that will be used in iOS and ANDROID. This is mainly because of the fact that majority of people prefer to use mobile apps instead of website. We will be using maps [3] and React native [4] platform for app creation. We will be using artificial intelligence [5] and machine learning [6] in the app.

**Related Work**

|  |  |  |
| --- | --- | --- |
| **Name** | pros | Cons |
| Roodtrippers [7] | App suggest user routes, pinpoint hotels and attractions. | App allow user to map route only up to 7 routes.  No user’s reviews are available about places. |
| TripIt [8] | App provide flight confirmation.  Hotel reservation and tourist places. | Free trail of app for only 30 days |
| Skyscanner [9] | App provide suggestion according to user budget and travel timeframe. | Very few filters are available for places search and suggestions. |
| Waze [10] | This app makes it easy for user to avoid congestion, blocked roads, police and accidents | Biggest drawback of Waze is the ugly UI and cluttered layout of the maps |
| CultureTrip [11] | This app provides hyper-local information and recommendations near your location | User can only explore places in one city/area.  Lack of tourist places. |

##### Goals and Objectives

The project’s goal is to reduce the time wasted by user because of the time wasted in searching for the right place for him. For that purpose, the end goal of the project would be to make a software prototype that would manage user’s travel using techniques and methods researched by us. The basic flow of the prototype would be something like:

• Data pre-processing: -

o Crawling dataset

o Classifying dataset into Reviews and Pictures

o Converting the Reviews and Pictures into model

• Taking an in-depth dive into already done and on-going research on this problem

• Extracting user behaviour according to its search history

• Designing an accurate AI recommendation models

• Developing our designed models

• Training and testing our dataset on our models

• Developing a mobile app of our project

**Research**

First, there will be an in-depth review of previously done research on this problem. Then a thorough examination of the techniques used previously to understand deeply this problem. Then a thorough examination of the on-going research on this problem and try to design the models based on an AI recommendation approach [1] which are going to be as accurate as possible and state-of-the-art.

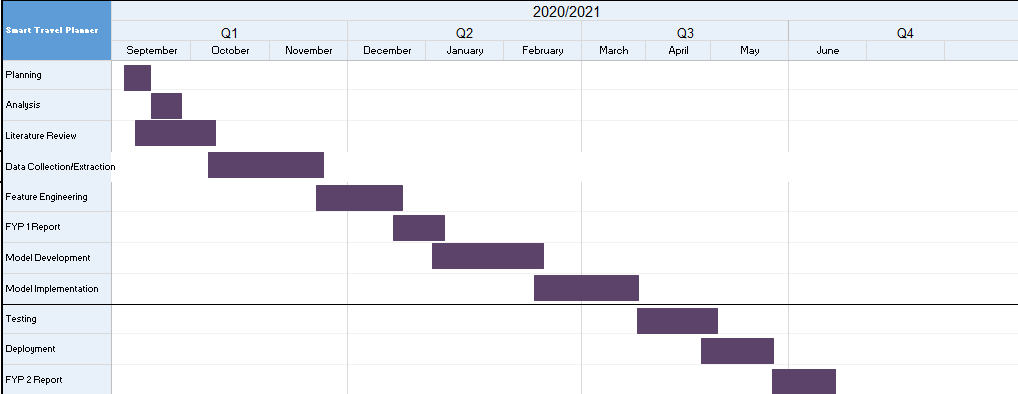
**Development**

After designing the models, we are going to start development phase. The preferred languages are Python and JavaScript as they are currently the most suitable in the field of Artificial intelligence, machine learning and React Native. Once prototypes based on designs are completed, the training and testing phase will start to train prototypes and test their accuracy; then tune models to make them as accurate as possible because the main aim is to launch these models as a mobile application for Pakistani market. In order to increase user’s satisfaction, the presented review result set should be different from one another. The satisfaction of users can be enhance through providing various reviews in a certain order of concern.

**Individual Tasks**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sr. No.** | **Reg. No.** | **Student Name** | **Responsibilities** |
| 1 | **FA17-BCS-087** | Abbas Ali | * Extraction and development of user’s interests * Implementation of machine learning techniques * Designing and development of the recommendation model. * Training and testing of the recommendation model. |
| 2 | **FA17-BCS-152** | Ibad -Ur -Rehman | * Explore Maps API * Extraction and Suggestion of places through maps. * Designing the user-friendly UI/UX prototype. |
| 3 | **FA17-BCS-127** | Muhammad Saeed | * Research on all user’s interaction and reviews. * Extraction of data from different platforms. * Develop recommendation model and train it through AI. * Implementing all functionality on server side. |

**Gantt chart**

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**Tools and Technologies**

React Native platform will be used for the development of app. Goggle maps and Open street maps will be used as maps in project. Artificial intelligence and machine learning will be used for the development of recommendation model. Visual Studio Code will be used as IDE.

Although prototype will be developed based on (any good) open source project, which will be, found in our research, but can be built from scratch if needed.

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([https://medium.com/@samil.mehdiyev/integrating-google-maps-into-react-native-app-on- android-40c984c0e4f2](https://medium.com/@samil.mehdiyev/integrating-google-maps-into-react-native-app-on-%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20android-40c984c0e4f2))

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[7] Roadtrippers (2011, August) Roadtrippers is a web based software application, mobile app,

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[8] Tripit (2006, October), checking one place for all your travel details and getting a heads up as

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[9] Skyscanner (2001, March), Find cheap flights, hotels & car hire from over 1200 travel

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cancellation. (<https://www.skyscanner.net/>)

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[10] Waze (2016, June), It provides turn-by-turn navigation information and user-submitted travel

times and route details, while downloading location-dependent information over a mobile

telephone network (<https://www.waze.com/>)

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stories, insider city guides, and handpicked hotels in the coolest neighbourhoods.

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