



American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science & Technology (FST)

Spring 21 22

TOUR GUIDER SYSTEM

Software Requirement Engineering

Sec: **A**

Project submitted

By

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The project will be evaluated for the following Course Outcomes

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1. PROBLEM DOMAIN

1.1 Background to the Problem

Travelling has now become the trend as a medium of entertainment in Bangladesh. There are different kind of destinations with different kinds of flavor. But tourists face various problems during travelling. Sometimes, they are unable to decide the best route and get confused to select the desired hotel for staying. Travelers find it difficult to recognize the nearest bus stations or airports and fuel stations or eateries. Also, there is always an issue of budget estimation. Even in many occasion tourists do not have ideas about touring spots and they fail to decide which one is better. In some cases, tourists are not aware of weather forecast of the place they are going. Due to bad weather, they fall in danger instead of enjoying the tour. Moreover, there are more risk involves. Another problem needed to be mentioned here that some travelers get it tough to find a group for travelling. In the age of social media people try to gather and record their activities as well as promoting them of their adventure. But in many scenarios, they lack of a common platform to do those things. Travelling takes a lot of effort. Improper guideline and lack of information before travelling or during travelling are the root causes behind those problems. Dispersed planning is another cause why those problem occurs. Because of, not following proper instructions can causes problems that are already mentioned.

1.2 Solution to the Problem

We want to develop a software named “Tour Guider System”, which will solve the aforementioned problems. The software will help tourists to choose the best possible route for their destination. The software will help travelers to select their desired hotel in that particular area. Tourists can use this software to find the nearest bus stations or airports and fuel stations also nearest eateries. After selecting a touring spot, the software will help the tourists by providing an estimated budget for the tour according to the situations and conditions. There will be the weather forecast of upcoming weeks in the software for each and every destination. So that, tourists can skip travelling in bad weather. The software will provide chat opportunity for discussion among the people. People can make groups and invite others for touring. Tourists will have the luxury of writing vlogs about their experience as well as posting about their thoughts by using the software. So, the others can take ideas and information about a place. Tourists will have the chance to open events and create contests by using the software. Usually, tourists face those type of problems. The software will provide the solutions for all of them. That is why this solution is particularly appropriate to solve those problems. Of course, the solution is feasible to meet the business objective. Recently, a lot

of business scopes are growing up around touring system in Bangladesh. So, the software will definitely have the opportunity to be in the business and make money through it. The purpose of the software will be reduced the cost of tourists, save time, offering safety, providing flexible communication environment. The software will be like a tour guide to the users. The objective of the software will be making a journey smooth and hassle free for the tourists. The ultimate goal of the software will be providing a cost saving as well as a time saving tool to the tourists. There is an existing software named “Roadtrippers”. It provides solutions for choosing popular destinations, guiding towards restaurants and fuel station as well as shopping center only. But these solutions are far behind to solve all the problems are mentioned above. This software will not full-fill the purpose of the software that we are going to develop which will provide all the solutions for aforementioned problems.

2. SOLUTION DESCRIPTION

2.1 System Features

Functional Requirements:

2.1.1 Choosing the Best Route

- The software will provide the best possible route for journey according to the selected destination of the users.
- If users select their destination the software will provide the best possible route with the assist of an API called Google Map.
 - **Priority Level:** High
 - **Precondition:** User need to provide the destination.
 - **Cross-references:**

2.1.2 Finding Ideal Hotel

- The software will allow the users to find ideal hotel in their selected destination. Google Map, API will be used to perform this operation.
- If users select a destination, then they will need to go to the Ideal Hotel option.
- If the user selects Ideal Hotel option a window will appear and show the information from database records and location from the Google Map of those hotels which will be available in selected destination.
 - **Priority Level:** Medium
 - **Precondition:** User need to provide destination.

➤ **Cross-references:**

2.1.3 Hiring Private Transportation

- The software will allow the users to find private transportation in their selected destination. UBER, API will be used to perform this operation.
- If users select a destination, then they will need to go to the Transport Hiring option.
- If the user selects Transport Hiring option it will be connected to Uber and from there by turning on GPS hiring will be possible for the selected destination.
- **Priority Level:** High
- **Precondition:** User must turn-on the GPS in the using device and need to provide pickup point and destination.
- **Cross-references:**

2.1.4 Finding Nearest Public Transportations

- The software will allow the user to find the nearest Bus stations, Airports, Railways from the current location of the user.
- User have to turn on the GPS and then select Nearest Transportations.
- Then with the help of Google Map, API the locations of nearest Bus Stations, Airports, Railways will be displayed on the screen.
- **Priority Level:** High
- **Precondition:** User must turn-on the GPS in the using device.
- **Cross-references:**

2.1.5 Finding Nearest Eateries & Public Washroom

- The software will allow the user to find the nearest restaurants and public washroom from the current location of the user.
- User have to turn on the GPS and then select Nearest Eateries or Public washroom as their need.
- Then with the help of Google Map, API the locations of nearest restaurants or public washroom will be displayed on the screen.
- **Priority Level:** High
- **Precondition:** User must turn-on the GPS in the using device.
- **Cross-references:**

2.1.6 Checking Weather Update

- The software will provide weather update to the user according to the destination and particular time by using an API named Global Weather.

- User need to go in Weather Update then select the destination. Particular time session can be given otherwise this feature will show the up-to date weather information.
- After providing destination and time to the software this feature will give the weather news of that particular area in a particular time period.
- **Priority Level:** High
- **Precondition:** User must provide the area.
- **Cross-references:**

2.1.7 Creating Event

- The software will allow the user to create event and give a name of the event.
- User will need to enter Create Event. The user will need to provide a name for the event.
- By performing the tasks of aforementioned options event will be created.
- Event creator will be able to handle the privacy of that event by selecting Event Privacy. User can make the event closed or public from there.
- User will be able to set the time frame for the event from the option Set Event Time.
- User will be able to approve or cancel the join request of that event as there will be a Join Request window available with option Confirm and Cancel. Join Request option will be found in under the Event Name.
- There will be an Event Member List where all of the joined members will be found.
- All of the information of the event such as event time, event name, members who will join the event will be stored in the database.
- User can delete an existing event by going on Event History. Then find the event name. After that, click Delete.
- **Priority Level:** High
- **Precondition:** Null
- **Cross-references:** 2.1.8

2.1.8 Making Groups

- The software will allow the user to make groups among the joined event members.
- User can find other from the Event Member List of Create Event. From there user can make groups among them.
- When user will be making a group with others, a notification will be sent to those whom the user wanted to be joined in the group.
- Only if those members accept the request, then they will be added in the group. The record will be stored in the database.
- User can control the admin panel by go to Settings of the particular feature.
- Admin will be able give permission to join or remove anyone from the group.
- Members of the group will be able share their thought by using another feature Chatting.

- **Priority Level:** High
- **Precondition:** Member need to be joined in the particular event.
- **Cross-references:** 2.1.7, 2.1.9

2.1.9 Chatting

- The software will allow the user to chat with other members of the group in personal or in the group by selecting Chatting.
- From there the user can find others who are already added in the group. From database this feature will provide the members who are in the group.
- User will be able text others, give voice message, send reply of a particular message, share links, send photos, short videos of length not exceeding the size 25MB. For performing those tasks all of the icons of those sub-features will be on the top of the chat bar.
- Besides those the user will be able to mute someone, mute groups, leave groups, creates poll, send emoji, give reply to a particular message with an emoji. These tasks will be performed by selecting those particular sub features and those features will be available in that window.
- The user will be able make audio calls and video calls with in personal or in a group. To perform this task user will need to find the member or members and then from Phone Call icons from top of the chat bar can make calls.
- User will be able to Delete a conversation. To perform this task user will need to select the member, whom with the user chatted. Then from there the user will find a sub-window. From there the user can find that option to delete the conversation.
- **Priority Level:** High
- **Precondition:** Members need to be present in the group.
- **Cross-references:** 2.1.8

2.1.10 Writing Vlogs

- The software will allow the user to write vlogs in particular topics. By entering Writing Vlogs, the user will get a window form where the user can choose a template for writing vlogs.
- After choosing the template the user will be able start writing vlogs right way.
- The user can make the vlog public form the privacy settings of this particular feature.
- If any vlog is posted by the user other users will be able make comments in the comment section of that vlog.
- Other users will be able to give rating for that vlog from the option Rate this Vlogs.
- The user will be notified if any other users make comment or give rating in the vlogs.
- There will be an option of Share so that, the vlog can be shared in other mediums.
- **Priority Level:** High
- **Precondition:** Null

- **Cross-references:** Null

2.1.11 Gallery

- The software will allow the user to use gallery facility to store photos, videos and files.
- There will be an option Your Memories under the Gallery section.
- If the user wants to upload something then, there will be options from where the user wants to upload the files. User will need to select the files from his desired location.
- User will be able make folders in the gallery. User can name those folders. To performs these tasks user can go to Gallery, under the gallery user will find Create Folders. User can provide the folder names from there.
- After selecting files and the folders there will be an option Upload in the bottom of the window. If the user clicks it the files will be uploaded.
- The user will always be able to delete or add new files in the gallery as all the record and information will be stored in the database.
- **Priority Level:** High
- **Precondition:** Null
- **Cross-references:** Null

2.1.12 Log Out

- The software will allow the user to exit the system by using Logout feature.
- The user will find Logout on top of every window, after once logged in.
- By clicking Logout, the user will find another window.
- That window will come with two options Exit and Cancel with a message.
- If the user click cancel, the use user will be still logged in.
- If the user click exit, the user will be able to exit the system.
- **Priority Level:** High
- **Precondition:** User must be logged in, in the system.
- **Cross-references:** This feature is connected with Log in feature.

Quality Attribute:

2.1.13 Availability

The software will be available for 24/7. As the software will be using through internet, it will be very easy to perform any operations with the software from anywhere at any time, if not any inconvenient issue occurs.

Priority Level: High

2.1.14 Performance

Every web page of the software will be downloaded in 10 seconds or less over a 60 Kbps modem connection. So that, the user can get a smooth performance while using the software.

Priority Level: High

2.1.15 Integrity

The user will have the privilege of authentication if the user wants. Also, the software will ask for authentication if the user changes device. The personal information of one user will be protected because there will be access restrictions of others.

Priority Level: High

2.1.16 Robustness

The software will automatically exit the system or Logout, if the user has no involvement with the software in 10 minutes, because of avoiding being hacked. The software will save data in every 10 seconds while the user will do any operations. So that, if the user got any inconvenient issue, the user can just start the same operations from where it left.

Priority Level: High

2.1.17 Usability

A trained user shall be able to submit a complete request for creating an event, deleting, confirming member in 2 minutes.

Priority Level: High

2.1.18 Efficiency

At least 30 percent of the processor capacity and RAM available to the application shall be unused at the planned peak load conditions. So that, the user can get instant responses from the software, if the number of users is high.

Priority Level: Medium

2.1.19 Reliability

The software will not fail no more than five experimental runs out of 1000.

Priority Level: Medium

2.1.20 Maintainability

A user can easily modify any information, if it is given wrong. But for modification, the user must go through security phases.

Priority Level: Medium

1.2 UML Diagrams

1.2.1 Use Case Diagram

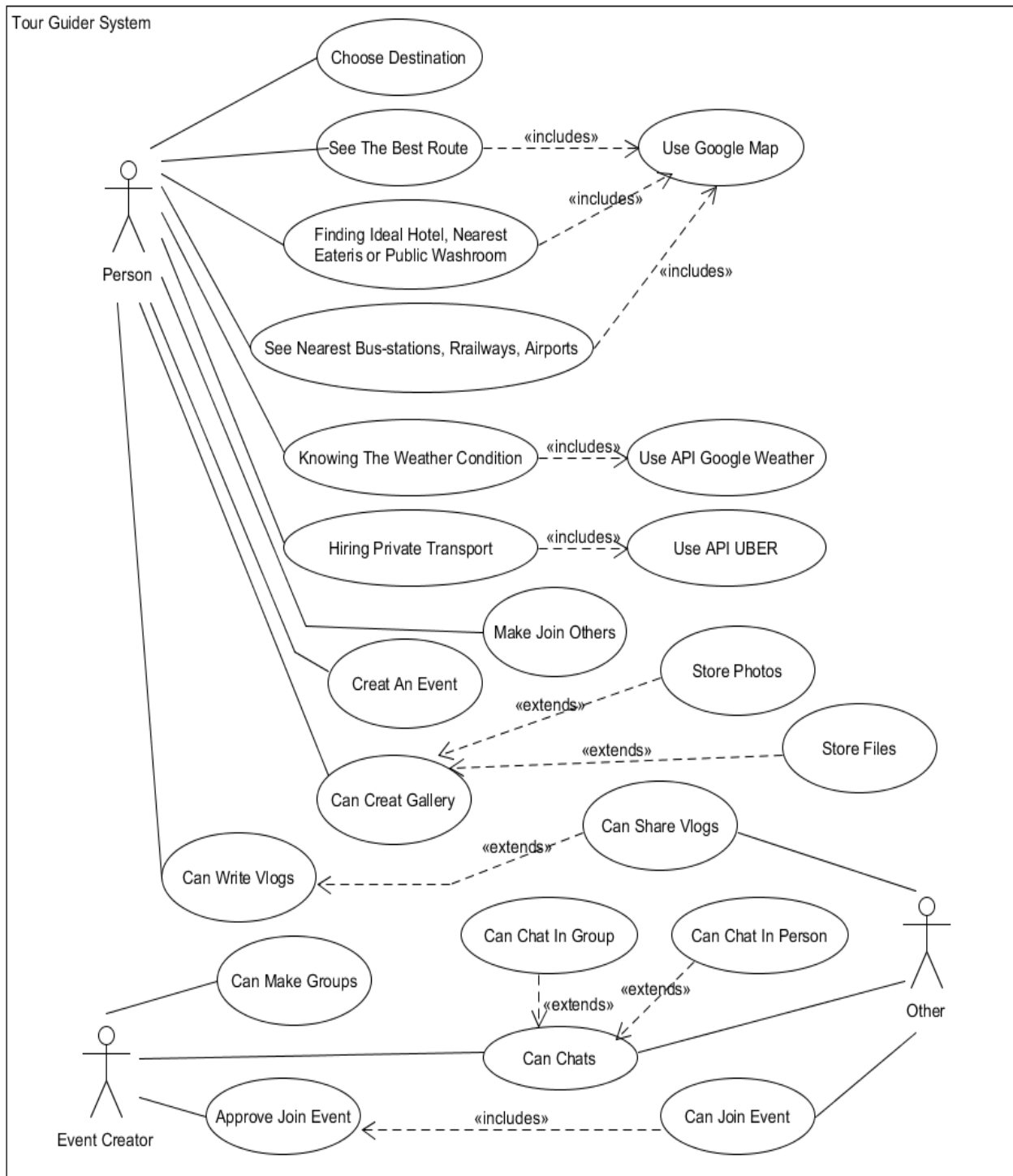


Figure-1: Use Case Diagram for Tour Guider System

In this Use Case diagram there are 3 actors. Person, Event creator and other users. Here system allows Persons to select their desired destination, as well as the best route, finding idle hotels, nearest bus station, railway, airport, fuel station, hotel, eateries, and public restroom using the google map. User can check the weather forecast for their chosen tourist destination through API google weather. And also hire private transport using API UBER. They can also organize a tour event and a group to take advantage of the company's opportunity. They can also upload photos, videos, and write vlogs about their travels. They can also write vlogs and share it with others. Event creator can create groups, can chat with others in private or in groups also, he can approve join event for other users. Other user can join the event, chat with others and can see the vlogs as well.

1.2.2 Class Diagram

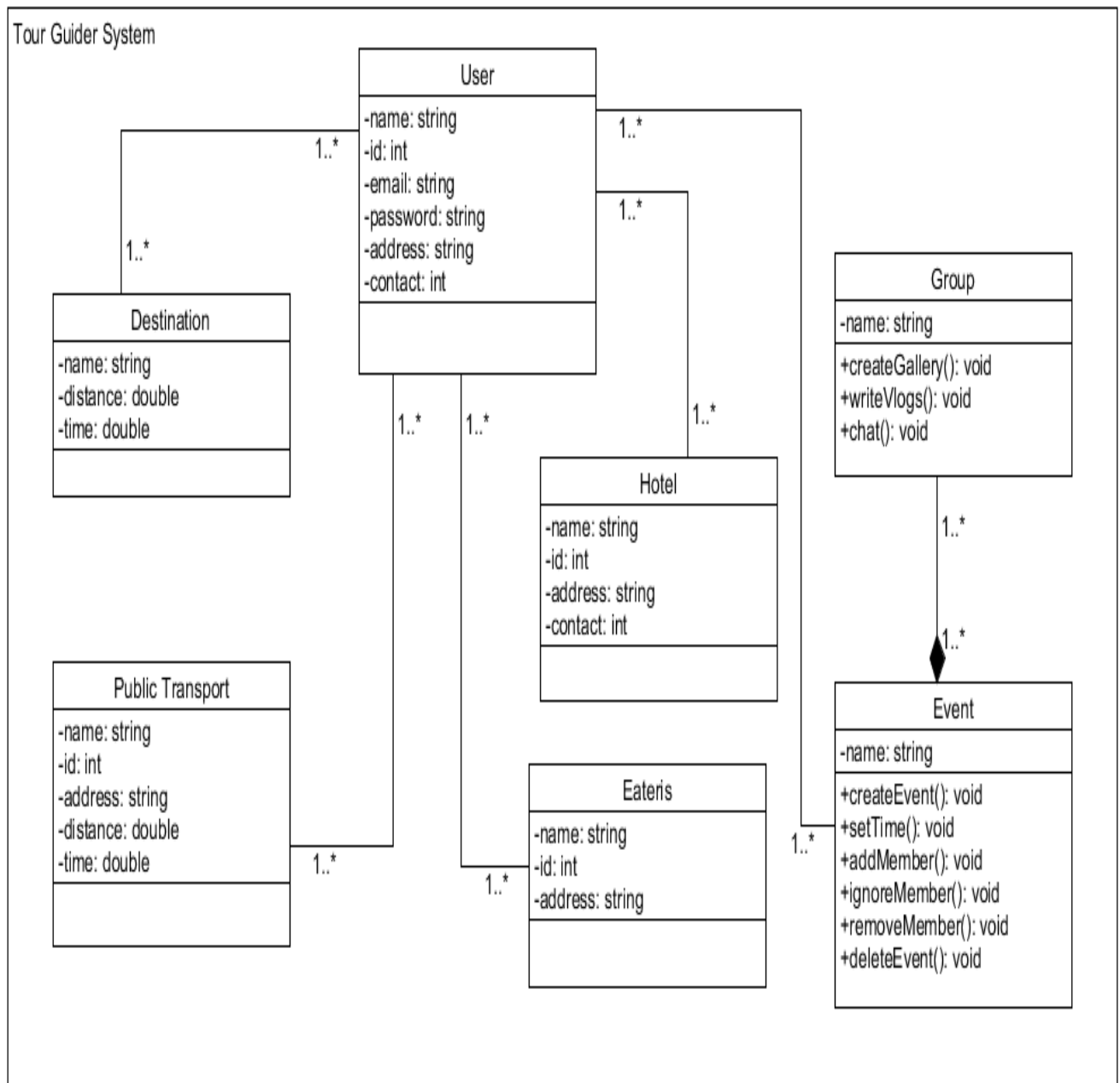


Figure-2: Class Diagram for Tour Guider System

In this, Class Diagram User has six attributes which are name, id, email, password, address, contact. Destination has three attributes - name, distance and time. Group and Event has only one attributes – name. Hotel has four attributes – name, id, address and contact. Public transport has five attributes – name, id, address, distance and time. Eateries has three attributes – name, id and address.

1.2.3 Sequence Diagram

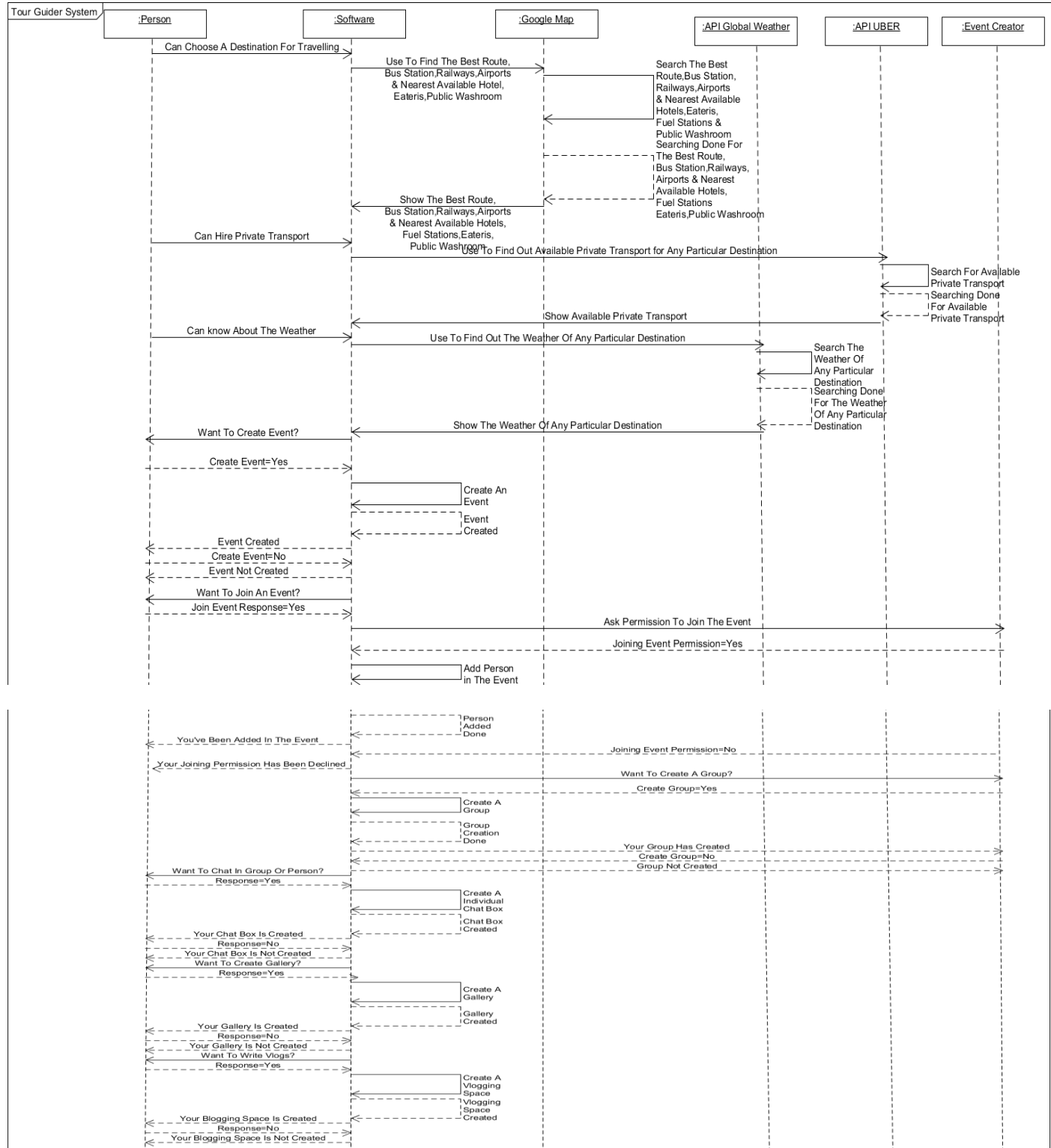


Figure-3: Sequence Diagram for Tour Guider System

A sequence diagram is designed to represent a timeline that starts at the top and gradually lowers to show the series of interactions. Each item has a column, and arrows indicate the messages that are sent between them. We can see the interaction between person and software in our sequence diagram, as well as the messages that are sent between them. You have the option of selecting a travel location. It is possible to rent private transportation, can get weather updates, want to organize an event, want to start a chat group, Vlogging space, and gallery space. Another interaction is between software and Google Destination, which entails asking Google to show the best route, bus stations, railway stations, airports, nearby hotels, eateries, and public toilet, and messages sent from software to Google Maps are used to find the best route, bus stations, railway stations, airports, nearby hotels, eateries, and public toilet. Then, using messages transferred from Google Maps to software, Google will provide an answer that includes the best route, bus stations, railway stations, airports, neighboring hotels, cafés, and public restrooms. Another interaction between software and global weather is the usage of messages sent from software to global weather to find out the weather of a certain location, which entails requesting global weather to display weather updates. The global weather then updates the weather by sending a message to software, which displays the weather of any given location.

1.2.4 Activity Diagram

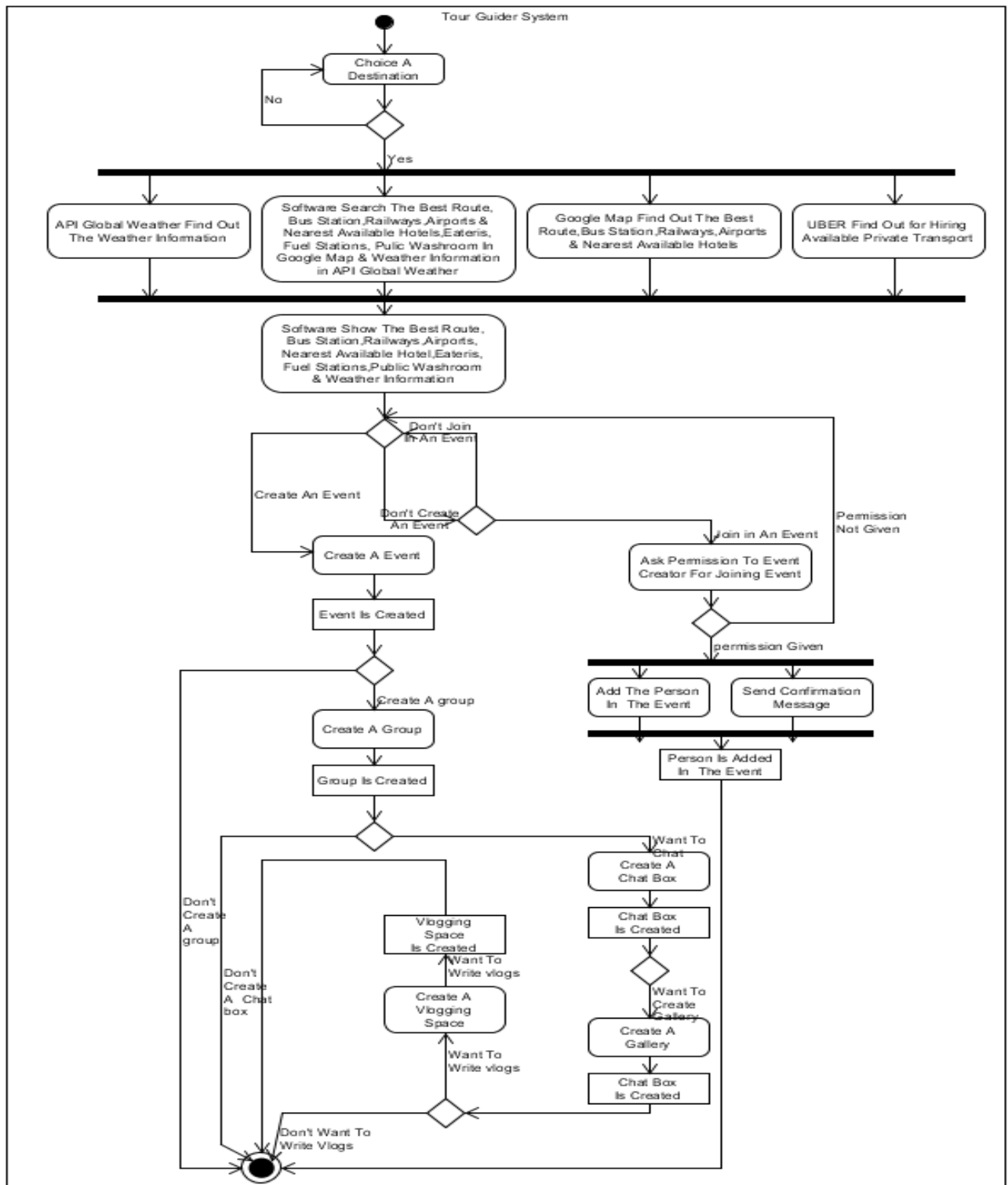


Figure-4: Activity Diagram for Tour Guider System

The Tour Guider System's initial state is Choice a destination activity for the user, as shown in this Activity diagram. Following that, a decision-making activity takes place. It basically has a condition to see if the user has selected a destination or not. If the response is yes, the user will be given additional information about the destination, such as weather forecasts, the best route, bus stations, railway stations, airports, nearby hotels, eateries, fuel stations, public toilets, and Uber information for hiring available public transportation. Following that, there will be an area for creating events. An event can be created by the user. There will be a condition to see if other users desire to participate in the event. If they want to participate in the event, they must first obtain permission from the author. Another condition will be used to determine whether or not the inventor has granted permission. If permission is granted, other users will receive a message confirming their ability to participate in the event. The person will thereafter be added. There will be chat groups, just as there will be events. And there will be a condition as to whether or not you wish to create a chat group. There will be vlogging and the condition will be whether to write a vlog or not, as well as a gallery and the condition will be whether to build it or not, similar to chat groups.

1.2.5 ER Diagram

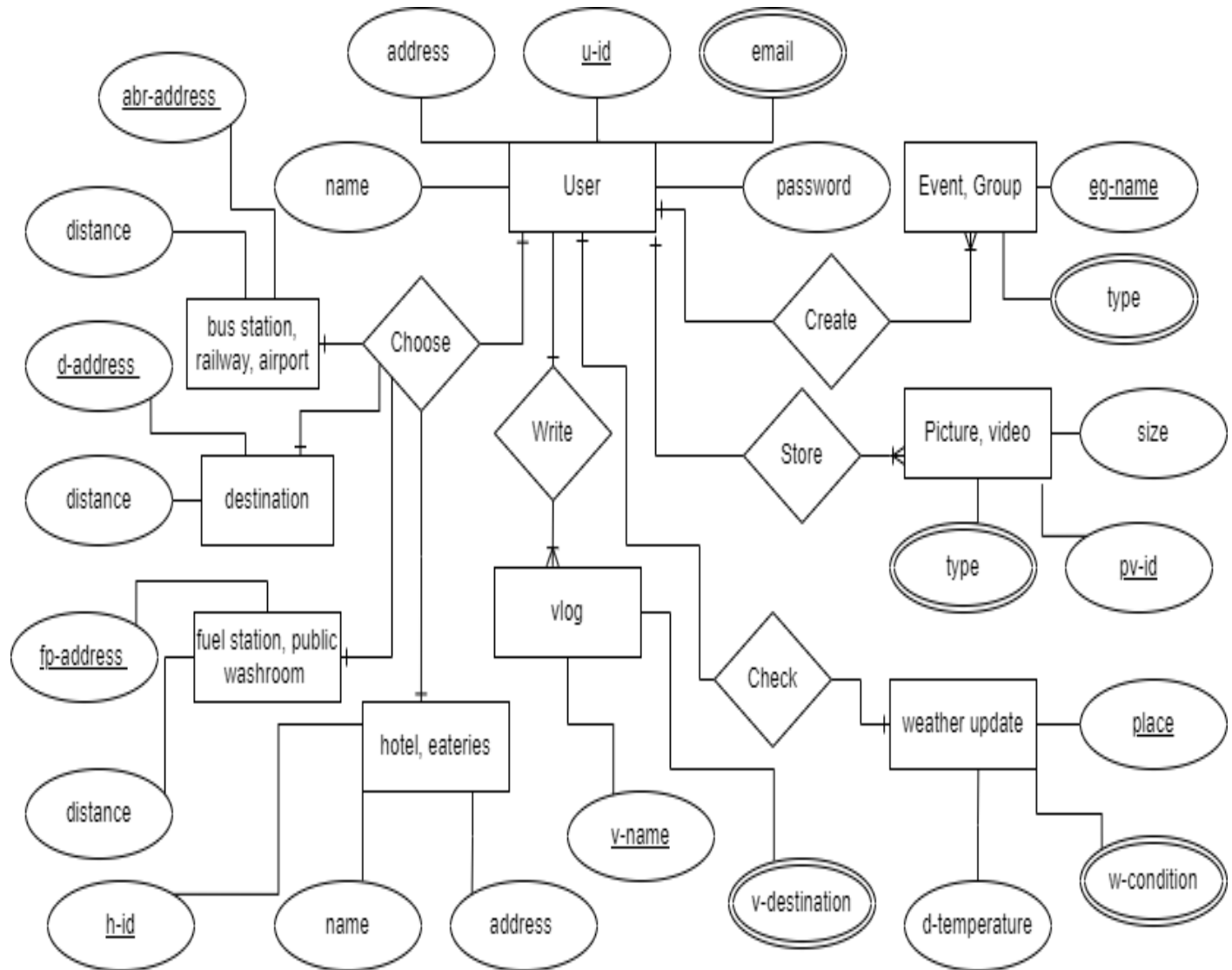


Figure-5: ER Diagram for Tour Guider System

The Er diagram for the tour guider system is shown in Figure 5. The tour guider system allows users to select their desired destination, as well as the nearest bus station, railway, airport, fuel station, hotel, eateries, and public restroom. They can then check the weather forecast for their chosen tourist destination. They can also organize a tour event and a group to take advantage of

the company's opportunity. They can also upload photos, videos, and write vlogs about their travels. Here, the user, the destination, the bus station, the railway, the airport, the fuel station, the hotel, the eateries, the public restroom, the event, the group, the vlog, and the weather update are all entities, and the relationships are choose, write, create, check, and store. The remaining blocks are referred to as attribute. The user then selects a destination, bus station, railway station, airport, fuel station, hotel, eateries, public restroom, and weather update; each of these relationships is one-to-one. However, when a user writes a vlog, saves pictures and videos, creates events, and groups them, the relationship between them is one to one or many. However, abr-address, d-address, fp-address, h-id, u-id, v-name, place, pv-id, and eg-name are all unique-value attributes, whereas email, v-destination, type, and w-condition are multi-valued attributes.

3. Social Impact

Bangladesh has already passed its tender age and is already competitive in several international markets. Tourism is one of the top five export categories for up to 83 percent of nations and a major source of foreign exchange profits for at least 38 percent. That's why we want to make sure tourists get the most out of our software. However, tourists face variety of challenges for lack of suitable guidance. Tourists may fall victim to scam if they rely on tourist guides without proper knowledge about them. Again, they are not more experienced or educated, thus when a visitor has an issue, they are unable to provide a better solution. As a result, sometimes they cannot be trusted. On the other side, there are numerous current tour guide applications, but they cannot deliver all of the functionality in one app. As a result, if users wish to find out restaurants or public restrooms, they must utilize various applications for each of their needs. However, with our system, we supply all of the characteristics that a tourists need. Consider a weather update, road condition information, and where to find out - fuel station, public restroom, eateries, hotel reservations, and so on. Tourists may also use these apps to reserve a car for their trip. As a result, they do not need to use several apps. As an outcome, tourists are getting all the important features related to tour guidance in one app.

4. Project Estimation

Project Estimation Schedule	
Project Title	Tour Guider System
Prepared By	Project Manager
Total Time Required	2016 hours
Total Cost Estimated	4,59,996 Tk

Assigned Job	Role	Budget Hour	Estimated Date	Per Hour Cost	Total Cost	Work Status
Requirement Collection	Business Analyst	5*24=120 hours	26 th February,22	200.5Tk	24,060Tk	Done
Requirement Analysis	Business Analyst	2*24=48 hours	28 th February	200.5Tk	9,624Tk	Done
Mock up	Business Analyst	2*24=48 hours	2 nd March	200.5Tk	9,624Tk	Done
UI/UX Designing	Business Analyst	5*24=120 hours	7 th March	200.5Tk	24,060Tk	Done
Develop Components	Developer	28*24=672 hours	6 th April	252.8Tk	1,69,881.6Tk	Done
Integration Test	Tester	21*24=504 hours	28 th April	234.2Tk	1,18,036.8Tk	In Progress
Bug Fixing	Developer	10*24=240 hours	9 th May	200.4Tk	48,096Tk	Waiting
Train Customers	Project Manager	4*24=96 hours	13 th May	270.7Tk	25,987.2Tk	Not Started
Maintenance	Developer	7*24=168 hours	21 st May	182.3Tk	30,626.4Tk	Not Started
Total Labor Hour		2016 hours	Total Cost		4,59,996Tk	

5. Project Schedule

A project schedule is a timetable that shows the start and end dates of all project tasks, how the tasks relate to one another, and who is responsible for delivery usually team members or other resources. It is a dynamic document that is created during the preliminary planning stage. The approved project schedule serves as a baseline against which to work, but it is maintained and updated as things change throughout the project.

Our Tour guider System is fully scheduled by Asana.

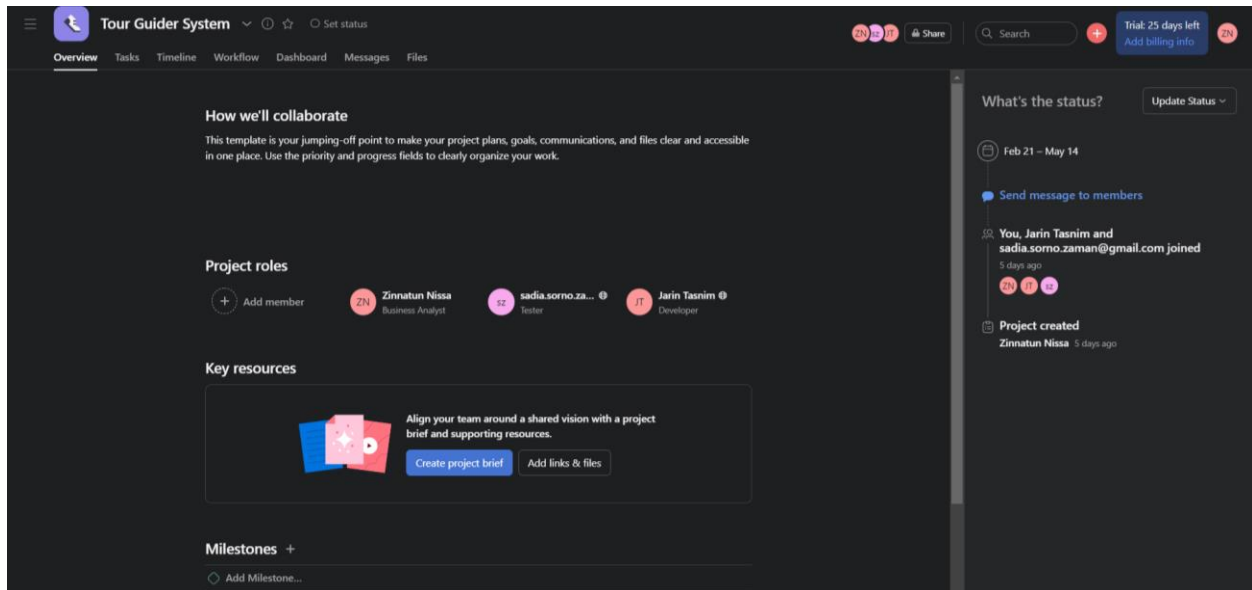


Figure-6: Overview of Tour Guider System

Figure-6 depicts a high-level overview of the project. The members' project roles are listed here. Zinnatun Nissa is assigned the role of Business Analyst, Jarin Tasnim Shama is assigned the role of Developer, and Sadia Zaman is assigned the role of Tester. The project's estimated completion date ranges from February 21st to May 21st. The Project Manager will update the project scheduling data.

Task name	Assignee	Due date	Projects	Tags	Dependencies	Priority	Task Progress
Draw up a Plan							
App Planning	Zinnatun Nissa	Feb 21 - 28				High	Done
Add task...							
Requirements Analysis							
Requirement collect & analysis	Zinnatun Nissa	Feb 21 - 28				High	Done
Add task...							
Designing							
Designing Mock-up	Zinnatun Nissa	Mar 1 - 8				Medium	Done
Add task...							
Programming							
Coding	Jarin Tasnim	Mar 9 - Apr 6				High	Done
Add task...							

Figure-7: Task Schedule of Tour Guider System (#1)

Testing ⚡	Testing existing features & implementing new needed features	12	sadia.somo...	Apr 7 - 28				Medium	In Prog...
	Add task...								
Release ⚡	User feedback consideration	11	Jarin tasnim	Apr 29 - May 13				Medium	Waiting
	Add task...								
Maintenance ⚡	Extra time for emergency purpose	11	Jarin tasnim	May 14 - 21				Low	Not Started
	Add task...								

Figure-8: Task Schedule of Tour Guider System (#2)

Figures 7 and 8 show the project's task list. The project task list includes the task's priority, assigner, project status, starting date, and due date. Here Zinnatun Nissa is in charge of project planning, requirement analysis, and design, while Jarin Tasnim Shama is in charge of programming, maintenance, and bug fixing, and Sadia Zaman is in charge of testing and maintenance.

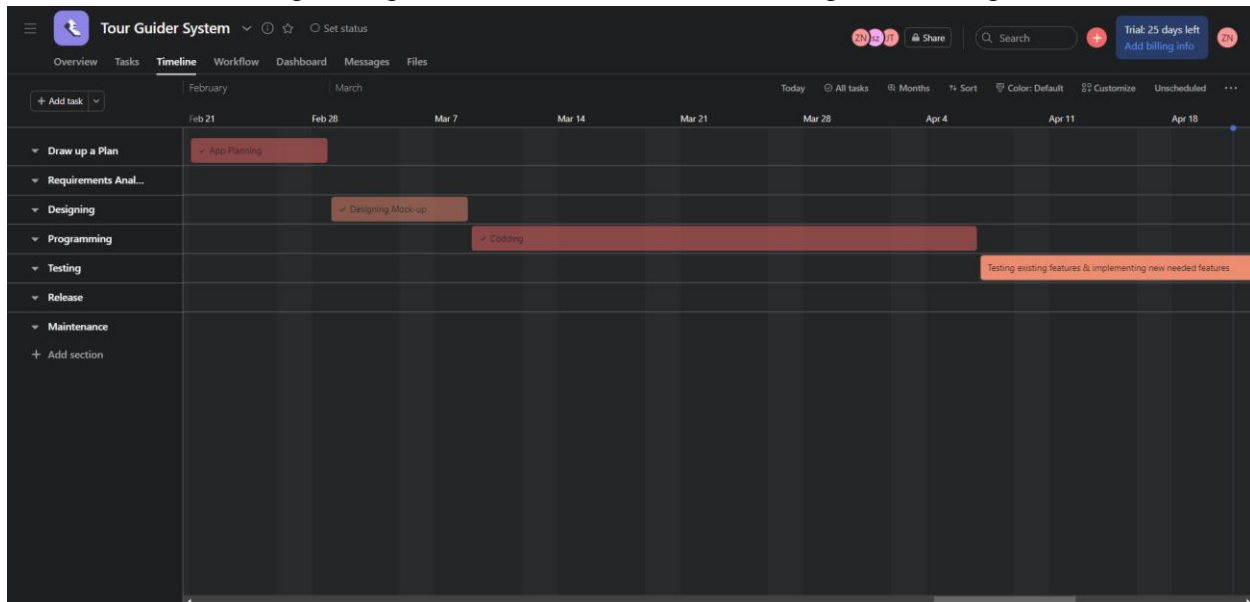


Figure-9: Timeline of Tour Guider System (#1)

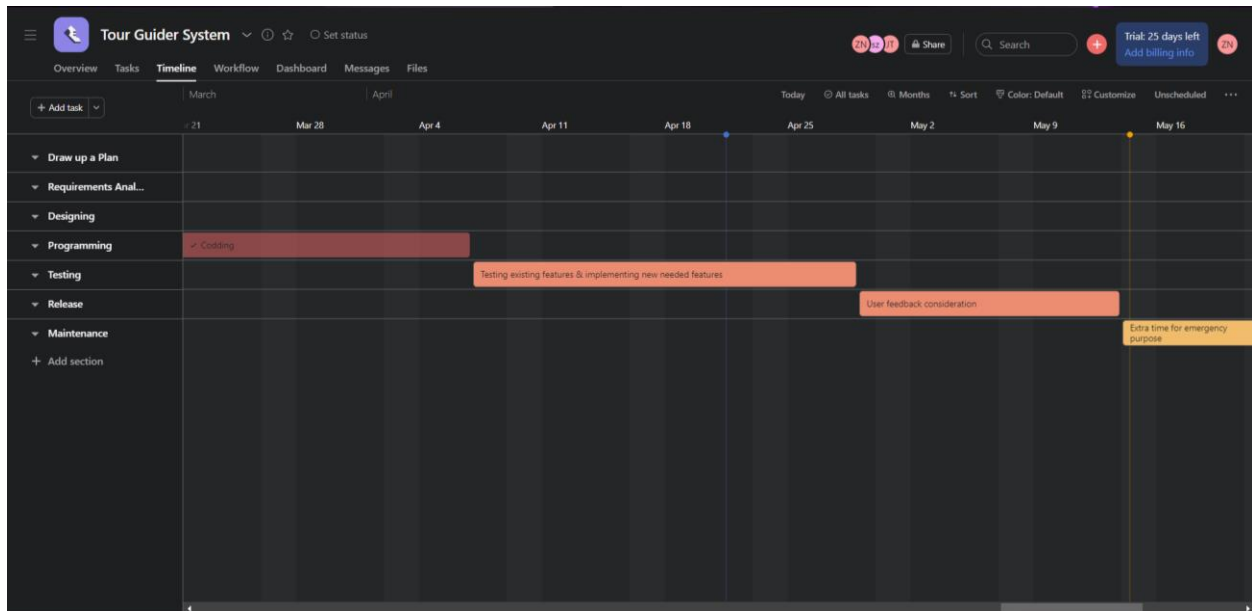


Figure-10: Timeline of Tour Guider System (#2)

Figures 9 and 10 depict the project's timetable. In calendar view, the project time schedule is shown with their priority color scheme. The starting date for project planning and requirement analysis is February 21st, with a due date of February 28th. The design deadline is March 8th, with a scheduled start date of March 1st. Then, for programming, the scheduled start date is March 9th, with a due date of April 6th. The next scheduled testing date is April 7th, with a due date of April 28th. Following that, the start date for bug fixing is set for April 29th, with a due date of May 13th. Finally, the maintenance start date is May 14th, with a due date of May 21st.

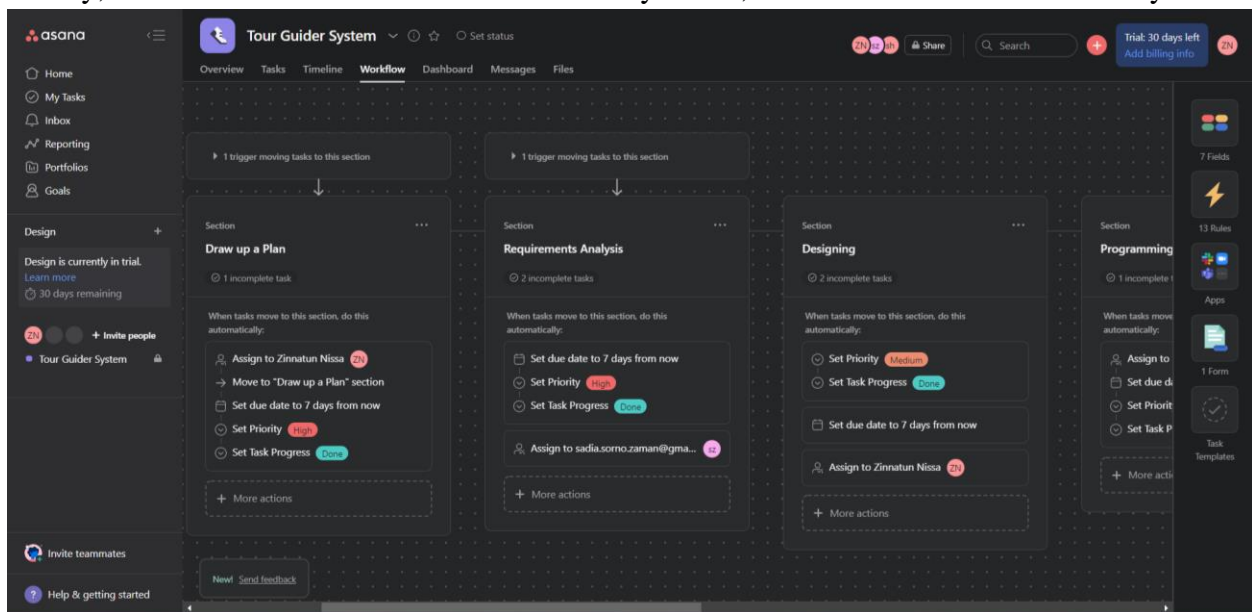


Figure-11: Workflow of Tour Guider System (#1)

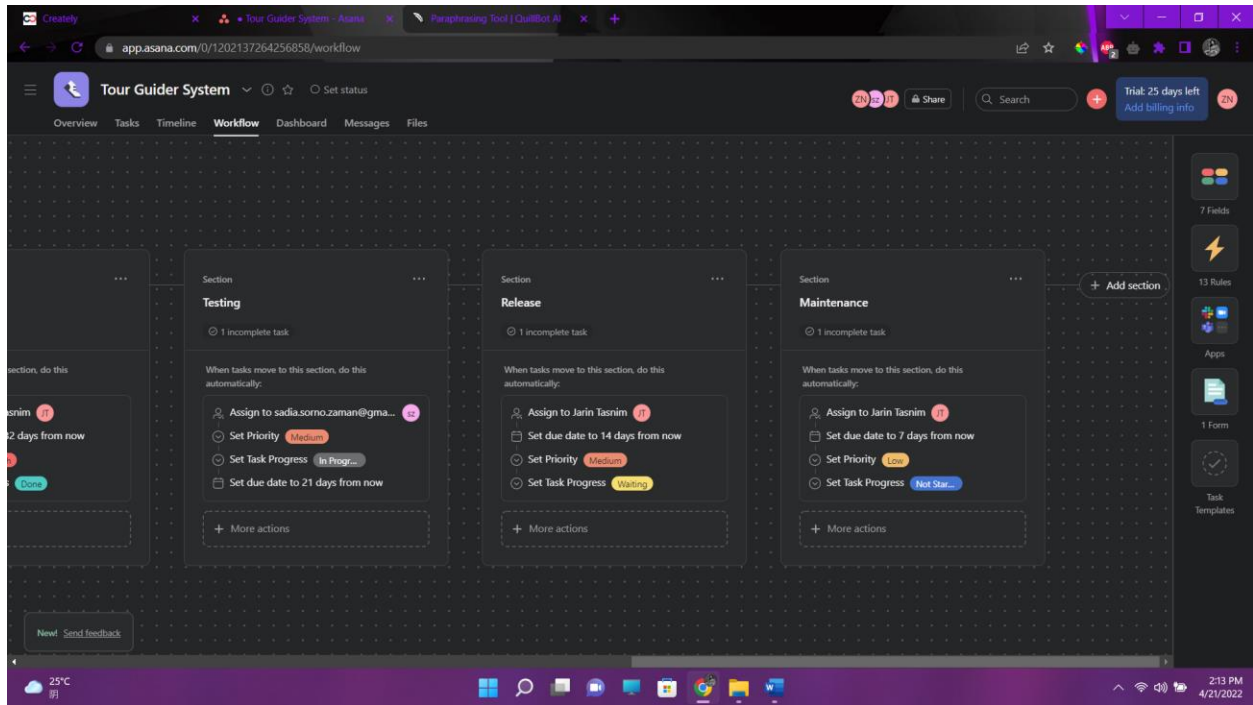


Figure-12: Workflow of Tour Guider System (#2)

The working flow of the project is depicted in Figures 11 and 12. In section view, the project workflow includes the task's priority, assigner, project progress, and due date. Project planning, requirement analysis, and design are handled by Zinnatun Nissa, while programming, maintenance, and bug fixing are handled by Jarin Tasnim Shama, and testing and maintenance are handled by Sadia Zaman.

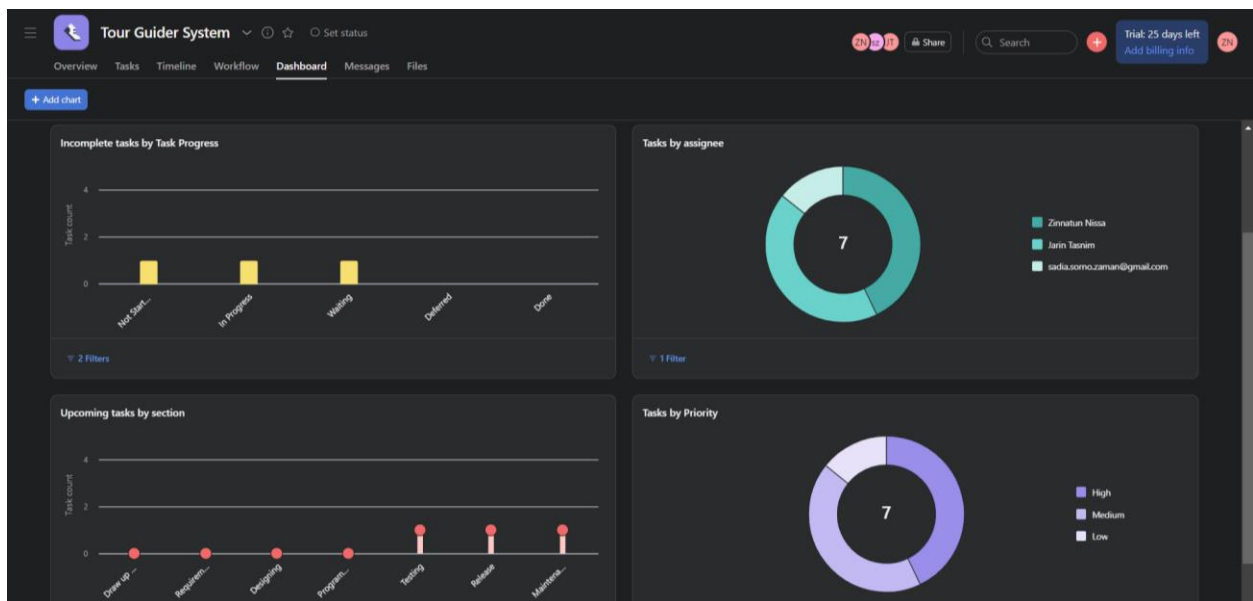


Figure-13: Dashboard of Tour Guider System

The dashboard for the project is shown in Figures 13. Incomplete tasks by task progress, upcoming tasks by section, project, task by assignee, and task by priority are all displayed on the project dashboard. One task is assigned to Sadia Zaman, and the remaining six are evenly divided between Jarin Tasnim Shama and Zinnatun Nissa. Then, looking at the tasks by priority, we can see that high and medium priority tasks each have three tasks, while low priority tasks only have one. Next to incomplete tasks, task progress shows that not started, in progress, and waiting all have one task each, while the other four tasks are completed. No tasks have been postponed. Finally, a look at the upcoming tasks by section reveals that testing, release, and maintenance tasks are scheduled in order.

6. Development Plan

The environment of the software will be dynamic. There will be changes coming time by time. We want to develop the software by using Agile Software Development method more specifically Scrum methodology. Since, the software will be containing some functions that will require changes according to the conditions and situations. Scrum methodology will be the best method for developing this software. The reason is, it will allow changes for the dynamic environment of the software development. There are other methodologies or models out there which allow changes for software development. But this one is the best method for this particular software. We are not selecting Waterfall model because, Waterfall model will not offer changes for the dynamic environment of the software development. We are also not taking XP model because, XP model will be more expensive than Scrum for the development of the software. The same thing goes with DSDM. It is more costly compare with Scrum. We do not want to develop an overall model at first. That is why we are not considering the FDD model. The RAD is also out of the list because this particular software will not be developed in small development time.

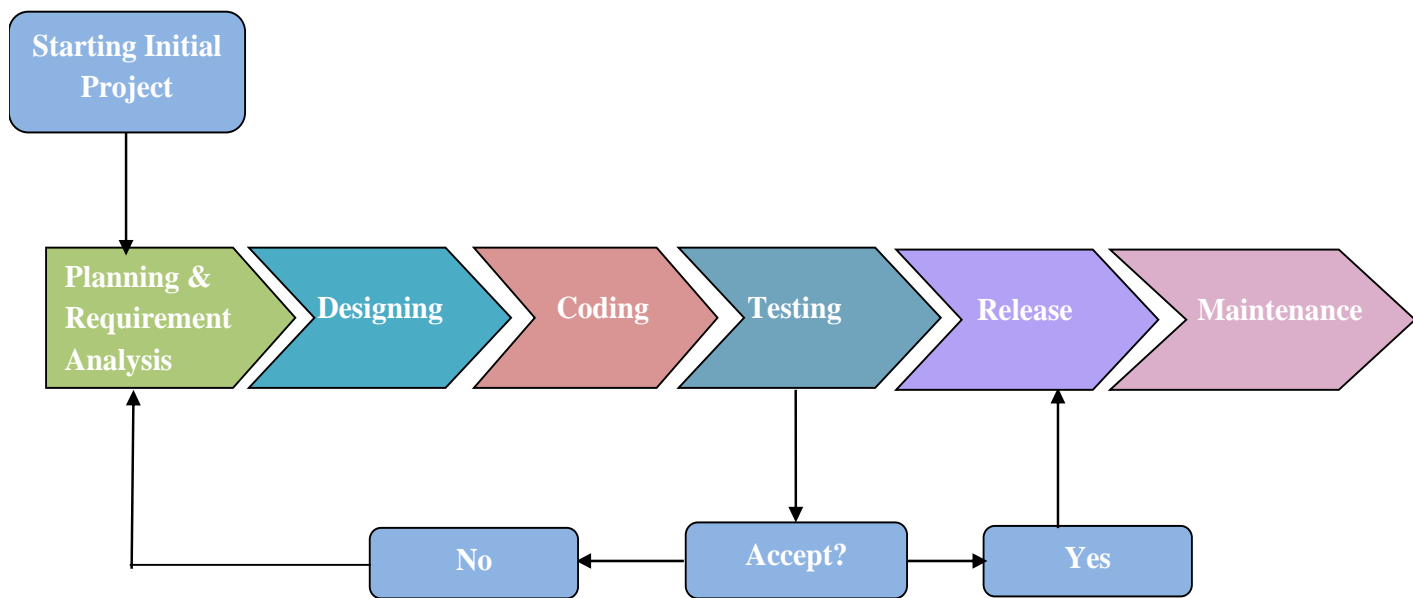


Figure-14: Software Development Life Cycle of Agile Model

Planning & Requirement Analysis:

The roles in the project management activities are Scrum Master, Product Owner, Scrum Team, Customer and lastly Management in this software development. Each role will have their own responsibilities. Scrum Master will have the responsibility to interact with both Product Owner and Development Team. The scrum master will also have the duties to the development team include coaching the team to self-organize. Product owner will be responsible for defining and prioritizing requirements for the product backlog. The scrum team will have the responsibility of effort estimation, creating the Sprint Backlog as well as they will have the authority to decide on the necessary actions and to organize itself in order to achieve the goals of each Sprint. Customer will participate in the tasks related to product Backlog items for the system being developed or enhanced. Management will be in charge of final decision making, along with the agreements, standards, and conventions to be followed in the project. Management will also participate in the setting of goals and requirements.

Designing:

As we are genuinely clear with the thought and have planned various UML outlines as to framework, we don't require much time for planning. However, this first two weeks of the development plan will be utilized to recognize flaws that might exist in the framework and fix

them. Defects that stay in this stage will be fatal during the execution or coding stage, so these should be taken care of appropriately and cautiously with multiple checking every one of the highlights in the plan.

Programming:

Any mobile device will be able to access the system. We will need a significant amount of time to program this project before we can put it into action. This app will be built with JAVA, MySQL, and some Java libraries. We will also use Python to process the data on the back end in order to provide the best possible results to the users. This way, we'll be able to provide useful feedback to potential clients. Four weeks will be spent in here. Pair programming will be used in practice.

Testing:

Now comes the testing phase, which will last three weeks. After the third week of programming, this will be done concurrently, so that when the fourth week of programming begins, the first week of testing will be in phase. Two members will be busy implementing what does not already exist, while the other one will be ensuring that the existing features are working properly.

Release:

The project will be released and implemented for public access over the next two weeks. During this time, any flaws that were discovered but were not addressed during the testing phases will be addressed. User feedback will be considered, and the system will be updated based on how cost and time efficient it is.

Maintenance:

The site will now be updated on a regular basis based on the situation and context. Customers, on the other hand, may take responsibility for product maintenance themselves, and in this case, they contact a service provider only in critical cases that they cannot handle on their own.

GANTT CHART FOR TOUR GUIDER SYSTEM

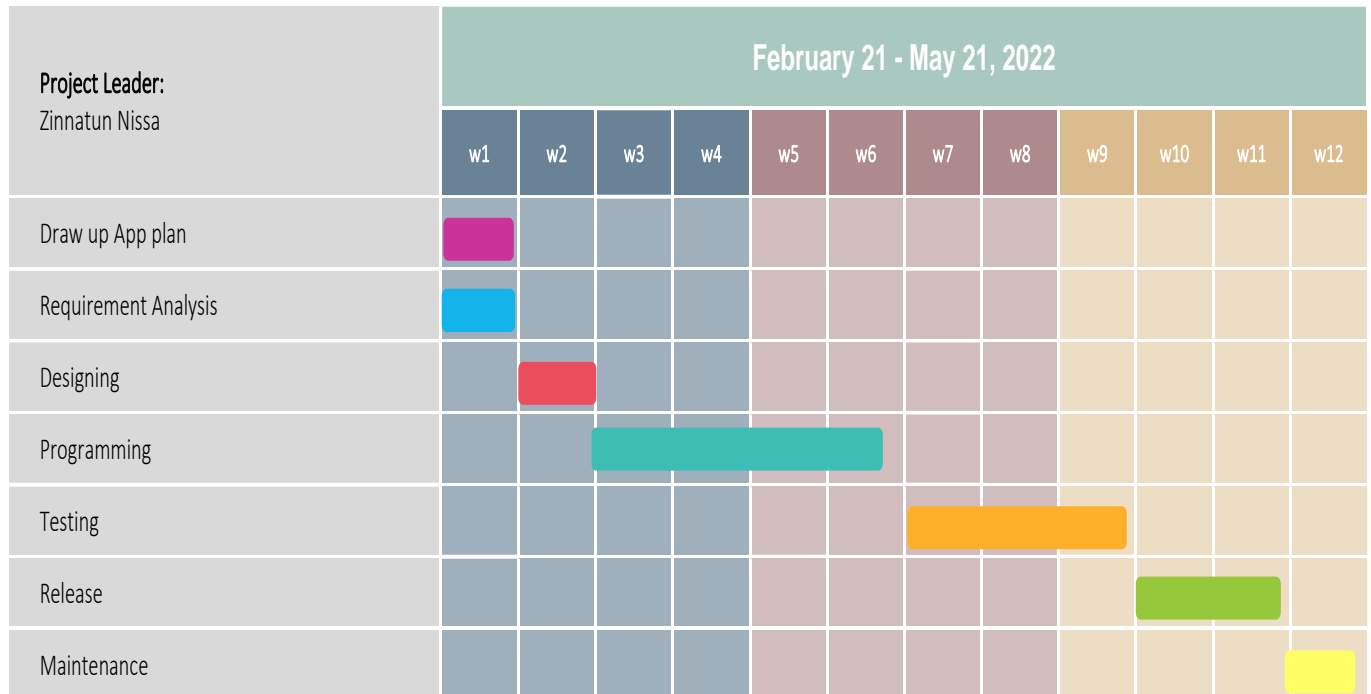


Figure-15: Gant Chart for Tour Guider System

We are allocating a total of 12 weeks for planned activity for the full project implementation.

7. Change Management Plan

In software development, change management refers to the transition from an existing state of a software product to a better state of the product. Changes to artifacts, such as code changes, process changes, or documentation changes, are controlled, supported, and managed by it. Where CCP (Change Control Process) primarily identifies, documents, and authorizes software application changes. Throughout the software development process, change management is used. New requirements and the need for change can appear out of nowhere and change multiple times. If we don't manage them properly, the project may fail.

Each software development process follows the Software Development Life Cycle, which ensures that each phase is completed in the correct order to produce a high-quality software product. Despite the fact that Change Management is not included in any of the phases of the SDLC, it is critical to the entire software development process. Change management tools are used for a variety of purposes, including adopting, controlling, representing, and enacting the required change. Change management tools for Flow Charting, Project Planning, Data Collection, and other tasks, for example.

Three dimensions define each software development project: scope, time, and budget. The majority of project changes have an impact on one or more of these values. Furthermore, every change introduces a risk to the software project's implementation. We can avoid or reduce risk, but there are times when we must accept it. The key is to be fully aware of each change's implications for the software project we're working on.

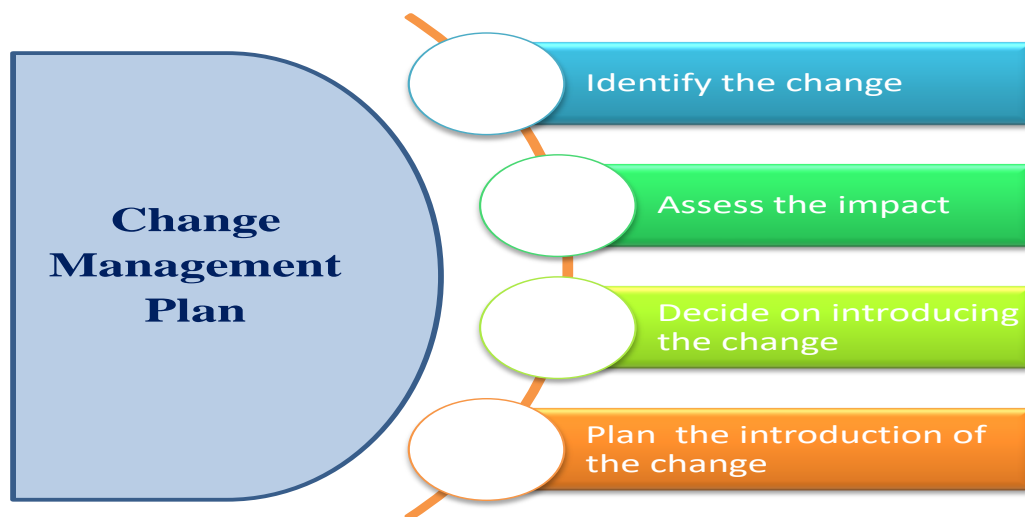


Figure-16: Change Management Plan

I. Identify the change

The name, type, scope of change, and project identifier are all features that can be used to identify the type of change. It will make the change easier to comprehend for all project participants.

II. Assess the impact

Identifying the threat that the change poses, as well as the impact it will have on the software, the team working on it, and the people who will use it. Examine the technical aspects of the change, as well as any potential side effects and the system's overall impact. Consider any changes to the project's budget, deadline, and the resources (both human and IT) required to implement the change.

III. Decide on introducing the change

Decide whether or not to make the change, and then get permission to do so. Knowing who will make the decision and how the change will be implemented is critical. It must be discussed from the start of the project so that we know how to handle change requests when they do arise. When making a decision, must make sure that the software development team is on board and they are kept informed at all stages of the process.

IV. Plan the introduction of the change

If necessary, make changes to the original project plan, including the impact of each proposed change on the software and any components that may need to be created or deleted when the change is implemented. Include any new deadlines or backlogs that the entire organization may face as a result of the change. Other challenges that the change may bring, such as changing the work content for all employees, must also be considered.

8. Marketing Plan

One or more marketing strategies are included in a marketing plan. It serves as the foundation for all of our marketing tactics, allowing us to link each one to a bigger marketing operation and corporate goals.

The key marketing sector for "Tour Guider" would be all types of visitors in Bangladesh, as well as foreign tourists who visit our country. Our goal is to supply all tour-related elements and to build a trusting relationship with our consumers. We want visitors to be able to take a safe tour with our system. One of the most significant parts of a company's success will be marketing and advertising. Social Media Account, Digital Marketing, Media Advertisements, Campaigns, Billboards, Promotional Video are just a few examples.

Marketing Strategy for the Short Term:

A short-term marketing strategy is one that aids a company in gaining initial momentum and traffic. Any business's short-term success is critical, especially in its early stages.

Digital Marketing:

Sponsored social media advertising is also a way to reach out to new customers. We might increase our customer base by the advertisements on Facebook, YouTube, Instagram, Twitter, and other social media platforms.

Media Advertisements:

Television has a significant presence in the media industry. As a result, television may be another medium via which we might inform people about our project. Radio and newspapers, like television, play an important role in the media industry. As a result, newspapers and radio may be another alternative for reaching out to new customers.

Marketing Strategy for the Long-Term:

Long-term marketing objectives are those that are achieved through a series of long-term marketing strategies. Short-term gain will also be covered. Long-term marketing plans can be the most important factor in a business's ability to survive over time. It's critical to attract the right customers over time.

Campaigns:

A campaign is any set of acts or events designed to attain a specific goal. For example, ours will be software advertisement campaign. We will do this campaign to gain more attention from the people. This campaign will be carried out in all regions where there is a lot of mobility of people.

Billboards:

When social media was less popular, billboards were one of the ways to advertise. As a result, we can use billboards to further our marketing efforts. It will easily draw attention from pedestrians on the route.

Search Engine Optimization:

Search Engine Optimization is a technique that allows users to find content that is more relevant to their search terms. Search engines such as Google or Bing can be contacted for this purpose, and they can be persuaded to promote our app and website more.

Plan for Consistent Marketing:

Continuous marketing plans are those that a company or organization uses from the beginning to the end of its existence. This is the most important of all the marketing plans involved because it combines short- and long-term plans and proves to be the lifetime of a company in terms of reaching customers.

Social Media Account:

First and foremost, we must create our own social media account on which we will post all of the relevant information about our product. There will also be a link to our website so that anyone interested in visiting it can do so quickly. Some people will be allocated to post on the social media account, and they will try to interact with the customers by posting product-related updates on a frequent basis. Any consumer who wishes to know more information can do so by sending a message to the page. We shall make every effort to respond to their messages as quickly as possible.

Promotional Video:

A promotional video is an excellent approach to introduce a modern-day product to the general public. In our country, there are several well-known influencers with large followings. They create promotional videos for a variety of products. We may also create a promotional video for our product through them.

9. Cost and Profit Analysis**Salary Cost:**

Role	Quantity	Time	Salary (Per Week)	Total Cost
Business Analyst	1	12 Weeks	30,000Tk	3,60,000Tk

Project Manager	1	12 Weeks	30,000Tk	3,60,000Tk
Developer	3	4 Weeks	20,000Tk	2,40,000Tk
Tester	2	3 Weeks	25,000Tk	1,50,000Tk
Total Salary Cost			11,10,000Tk	

Maintenance & Collaboration Cost:

Item	Time	Cost (Per Week)	Total Cost
Maintenance	3 Weeks	20,000Tk	60,000Tk
Google	48 Weeks	15,000Tk	7,20,000Tk
Uber	48 Weeks	10,000Tk	4,80,000Tk
Total Maintenance & Collaboration Cost			12,60,000Tk

Marketing Cost:

Short Term Marketing Cost:

Plan	Time	Cost (Per Month)	Total Cost
Digital Marketing	5 Months	10,000Tk	50,000Tk
Media Advertisement	4 Months	50,000Tk	2,00,000Tk
Total Short Term Marketing Cost			2,50,000Tk

Long Term Marketing Cost:

Plan	Time	Cost (Per Year)	Total Cost
Campaign	1 Years	1,50,000Tk	1,50,000Tk
Billboards	1 Years	90,000Tk	90,000Tk
Search Engine Optimization	2 Years	1,00,000Tk	2,00,000Tk
Total Long Term Marketing Cost			4,40,000Tk

Continuous Marketing Cost:

Plan	Time	Cost (Per Year)	Total Cost
Social Media Account	4 Years	1,00,000Tk	4,00,000Tk
Promotional Video	2 Years	70,000Tk	1,40,000Tk
Total Continuous Marketing Cost			5,40,000Tk

Total Costing:

(Salary Cost + Maintenance & Collaboration Cost + Short Term Marketing Cost + Long Term Marketing Cost + Continuous Marketing Cost) = (11,10,000 + 12,60,000 + 2,50,000 + 4,40,000 + 5,40,000) = **36,00,000Tk**

Analysis:

In-app advertising is an effective monetization strategy for app developers in which app developers are compensated to serve advertisements on their app. This allows publishers to keep their content free for users while increasing downloads and earning easily scalable revenue. The mobile app advertisements are delivered via a mobile app advertising network that connects advertisers and developers. The app requests an ad from the network, which uses algorithms to identify and deliver the highest paying ad to the user in real time. App developers can integrate a variety of mobile ad formats into their app to increase app monetization, including video ad units, mobile app display ads, and native mobile app ads. We can profit from social media as well. For our users, we also have a gallery feature in our app. Users in the gallery have 5GB of free storage, and if they want to store more photos or videos, we have a premium subscription option. If a user wants a premium subscription, they must purchase it, which is another source of profit.

Advertisement through app in 1 week = 1,00,000 Tk

Advertisement through app in 1 year (48 weeks*1,00,000) = 48,00,000 Tk

Advertisement through social media, 1 week = 50,000 Tk

Advertisement through social media, 1 year (48 weeks*50,000) = 24,00,000 Tk

Premium Subscription for 1 week = 200Tk

Premium Subscription for 1 year (48 weeks*200) = 9600 Tk

Total = Advertisement through app + Advertisement through social media + Premium Subscription

= 48,00,000 + 24,00,000 + 9,600 Tk

= 72,09,600 Tk

Profit:

72,09,600 - 36,00,000 = 36,09,600 Tk

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