Introduction

Background

The purpose of this research is to develop an application that enables its users to easily plan a one-day city tour that allows them to best utilize their time according to their interest.

The World Tourism Organization defines tourism as comprising "the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited."

Oxford English Dictionary defines tourism as "travel for pleasure or business; also the theory and practice of touring, the business of attracting, accommodating, and entertaining tourists, and the business of operating tours."

From these definitions it can be taken that tourism involves people visiting different places, with varying proximity to their home and varying period of time, for purposes ranging from pleasure to business.

For the purpose of this study, we will assume that the tourist have gotten to their destination and want to explore what that city has to offer within a limited time.

The internet has revolutionized the way people experience different locations. there are applications and platforms available that offer various solutions in regards to activities, tours and attractions for different locations.

With these applications and platforms, tourists are presented with a curated list of activities to perform, sights to see, food to try while on their tour. Some platforms even go as far as presenting tourists with offers to match them with other tourists in the same location so that they can share experiences along the way.

Most visited sights, most popular meals, best reviewed hotels and more are presented on different applications through the internet to help tourists best utilize their time at certain locations on their trip. Some of the platforms are briefly described below.

Musement, an online platform offers to help travellers get the "best" from destinations by providing a great choice of local tours and attractions bookable on multiple devices. As seen on the website, they offer a range of services that includes temporary, exclusive, hidden-gem and even free activities for multiple locations.

some of its service offerings include: book guided tours online
- buy entrance tickets
- register to join bus tours
- day trips and excursions etc.

Blink Travel, also an online platform for tourist offers the users curated cards of "best" attractions and experiences.
the user can schedule things to see or do by viewing the card and making their schedules
its card categories include: top attractions, what to eat, the best things to see and the best things to do amongst other things

Tripit on the other hand, plans the itenary for the user with their booking details.
tells them where to be when, alerts them on next moves, shows nearby places etc.

While there are multiple platforms on the internet with automated solutions to help users get the best experience in their locations, there are also applications that offer physical experts to guide the tourists in making the best from their tours as well.

Journy is one of such platforms. It offers experts that help plan a trip for users. they connect tours to experts, 1 on one to help them plan their visit, listen to their needs and take their preference into consideration while offering recommendations.

The **Personal-Trip-Planning-Service** on **Adventurelink** is another service where tours are planned personally for the tourist.
Tourist answer questions that help the platform create a personal itenary for them to use on their trip. The questions asked include:
  - What's the purpose of your trip?
  - What's your preferred trip?
  - What would you like to do?
And the aim for these questions is to get more details about the tourists preferences and needs for their tour.

With platforms like Musement, TripIt etc, it is a wonder why the likes of GoJourny still have millions of user base.

A user on GoJourny put it as:
"I found Journy after already getting an itinerary from a typical travel agency. Simply put, Journy's recommendations blew theirs out of the water. Every concierge we worked with really listened to what we wanted as travelers and led us to the off-the-beaten-path sights we were looking for. Plus, the process is super smooth and easy!"

The key words to note in the user review are: "worked with them" and "listened to what they wanted". This is one of the key selling points of Journy platform.
The users start out by filling a questionnaire about their travel budget, dietary restrictions, interests and more, they are then paired with an expert who takes these into account while planning their trip.

While there are multiple platforms on the internet with solutions around how a tourist can enjoy their time in a location, the recommendations from these platforms are not based on personal preference of the tourists.

The most visited places, most popular events, most tried meals and the rest been offered on these online platforms are great, but as seen by users still seeking personal tour planners, these activities don't appeal to everyone on their different tours.

People want to be listened to and want their input to be taken into consideration when a tour is being planned, but the existing platforms do not offer a solution for this challenge.

This creates the need to have an online platform application that works with tourists/users to get the profile, know their needs and discuss their preferences for their tours.

City Tour Planner gives users an itinerary and tour plan that is based on what they like to do and how they enjoy spending their time.
It does not offer an auto generated itenary to the users based on metrics unknown to them.

This system will take away the human layer that comes with personal tour planners and in doing so it:
- Reduce feedback time between the planner and the tour as the application will respond in an automated manner
- Reduce cost for the tourist as they dont pay to hire a personal planner
- Make changes to their itenary as the plans offered by the system are editable.

In all, it will save time and money for the tourist while offering them itinerary and plans that are customized to their needs on their trip.

The need for personal tour plan is one of the major reasons why offline travel agency and tour planners still have thousands of users.

This project will also develop to learn more about the user, based on their interaction with the initial provided tours, thereby using their data as they go on multiple tours to plan tours for them in future.

Motivation
People go on tours to have experiences outside their normal day-to-day lives, meet new people, learn about different cultures and destinations, to do business amongst others.

Touring, though it has its benefits, often requires a lot of planning to ensure they get the best of it and enjoy their time. This plan entails tourists take into consideration how much time they have planned, their budget, their personal preferences and other details that make the tour enjoyable.

There are platforms and services available on the internet to automate this planning processes for the tourist. These solutions range from booking flights, hotels, planning itenary to as far as suggesting locations and spots to tourists in their city or location of interest.

While these solutions are helpful, they leave out a very important aspect of tourism, which is customization and user preference
Showing most popular activities to users based on location alone, does not take into account the users preferences, their budget neither does it consider the time they have planned for their visit.
These platforms do not consider what is important to the user while showing the listings and activities in their location of interest.

This lack of personalized listings is the primary reason experts believe that almost half of all travel booksing still come through offline channels.

Using this available data on open APIs and getting more details about the tourist, City tour planner can create a personalized one-day tour for the tourists. This tour will meet the restrictions defined by user profile, start and end locations, time, their dietary preferences, showing them what they can eat where while on their tour.

The application built from this project will enable users to plan their tours and eliminate the need for offline consultations or the hiring of a personal tour planner or spend time spend time planning personalized tours themselves.

Aims and Objectives

The aim of this project is to develop an Android application that will enable a person to easily plan a one-day city tour, that allows her to best utilise her time, according to her interests.

For the application to achieve this, it should be able to do the following:
- Allow a user to sign up/login
- Allow a user to update their profile with personal details like gender, age, nationality etc
- Allow the user to create a new tour
    - The user needs to enter location to create a tour
    - Ask the user specific questions to understand their preferences for this tour
    - If this is not the first tour of the user, the application should provide user with the option to use or update previous preferences for a past tour or decide to answer the questions for this specific tour

- Normalize user information for the tour created to make it usable for open APIs
- Retrieve data from open APIs using the normalized user information
- Analyze this data from APIs using time and the proximity constraint to create an itinerary for the user tour
- Return this itenary to the user
    - Itenary should include start and end locations
    - Stops for food during the tour

- Time between each stop location on the tour
- Allow user to edit the itenary generated
- Allow user to view this itenary on a map or a list
- Store the user and trip data to provide better experience and recommendations for future tours
- Store the user tour data to provide better experience for next tour using recommendations and learning from this tour
- Allow user share their tour itenary
- The tours must be bound in time to 24 hours
- Output the plan to the user

Project Plan
The image for the project timeline is attached below.

	City Tour Planner Project timeline	Duration	Star	ETA
	Complete project execution	120 days		
1	Engineering	95 days		
1.1	Project initilaization			
1.2	User authentication on the app			
1.3	Create tour			
1.4	Answer questions for tour			
1.5	Generate tour itinerary			
1.6	edit or save generated tour itenary			
1.6	user can share tour itinerary			
2	Documentation	15 days		
2.1	Identify/document of system requirements			
2.2	system architecture and components document and diagram			
2.3	Entity relationship documentation/diagram			
2.4	flowchart diagram for the application			
2.5	Identify/create system questions for each tour			
2.6				
3	Deployment	10 days		
3.1	Create project APK			
	Deploy project to android Playstore			

Scope

The scope of the work being carried by this project is limited to building an android application creates a 24-hour city tour plan for a user using their preferences, time.

This project does not cater for group tours, where more than one person is touring a location. It can be extended in the future for this behavior but that is not in the current scope.

This project employs open and free APIs for its data collection, and the language of content and communication on the app will be the English language.

While applications should be built for accessibility and wide user reach, the scope of this project does not allow for it to cater to people with certain disabilities such as blindness, as it does not have the resources needed for users with such conditions to enter or read information