# **Analysis & Design**

**System Architecture:**

The system architecture consists of the complete method used for the recognition of each segment of a web entity such as its various dimensions, facets, interface and so on. It is an important component because it helps define the requirement quota upon which a web application is based and aligned with. The main advantage of system architecture is that it projects all functions, features and operations in a system for clear visibility, also it plays a prominent role in data interchange, which in our case is travel information.

Keeping in view the requirements for this project, a robust architecture opted. The user communicates with the web application server via the browser. A front-end presentation layer is displayed to the user. This communicates with the back-end application layer via RESTful APIs. The user selection determines the parameters for the requests. The back-end communicates with various 3rd party web services to retrieve data and apply transformations according to the business logic of the

system. The data once processed is displayed in a rational manner to the user via the presentation layer. The user can then request the data via email which is sent to him via a 3rd part web service.

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**Use Case Diagram:**

UML diagrams serve the purpose of representation of any particular process or function occurring within an application. It has a number of diverse categories, among which the least complex are use-case diagrams which help project the pattern of interactions that the user has which the system. These fragments are broken down into ‘actions’ and naturally, users are regarded as the actors within the interactive process.

In this application, travel features are addressed by taking into assessment the various dimensions entailed; passengers or travellers are kept updated with the locations, destinations, arrival and departure times as well as the particular services available at their specified time slot.

In this application, the options available to the user lie in the selection of trip duration, trip destination, activities and the number of travelling passengers. The system processes the user provided options to generate a travel plan. The data processed by the system is provided by 3rd party web services which are compiled by the system to create a sequential and understandable interface which is viewed by the user. The user can opt to receive the plan as PDF which is sent by the system using a 3rd party service.

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**Sequence Diagram:**

A sequence diagram is also used to display interactive elements, but it does so through a specific focus on the application’s travel planner components and while doing so in a conjecture of the time sequence involved in the entire process. It takes into account all elements and functions but does so within the time frame in which they occur. Thus, sequence diagrams use a temporal template for the representation of interactions between the objects of the travel application and the time units involved. Sequence diagrams are important for the logical representation of individual cases of processes occurring within one travel function or plan, which means that it is an important display for case representations. It commences from the user’s request of travel data, his provision of information according to his requirements, the generation of appropriate information in the form of a pdf file and then the passing on of the file back to the user.

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**Activity Diagram:**

Activity diagrams are the most essential type of UML diagrams because they are well-suited for the creation of business models. It is important and preferred in business process representations because it does so in a perfectly aligned flow. It encompasses the features of other diagrams (as mentioned before it), thus it possesses the capacity to represent operations in both sequential and comparative or parallel forms. The value of these diagrams for business modelling is drawn from the fact that they are able to project consumption, usage, and user preferences through their functional representations and define the relationship between these facets while doing so. Although these diagrams are thorough, the emphasis does not lie on the commencement and ending of an activity, rather all the fragments upon which the activity is consistent on and their association to one another.

The travel parameters opted by the user once finalized are passed to the system, the system fetches the data from the 3rd party web services and runs iterations to generate the optimum values. The values once complied are either displayed or sent to the user via email based on the user’s choice.

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