

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
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1 INTRODUCTION

This section describes the purpose and use of our web-page. Our web page will be named after "Voyager". The intention of our web page is to help travelers finding some beautiful lakes and campaign sites in Texas. A user of Voyager will be able to make reservations of cabins, hotels, restaurants located nearby the lakes and share his or her experience and stories to the world.

1.1 PURPOSE AND USE

The main objective of our web-page is to provide updated and accurate information and navigate traveler to find the beautiful lakes and campaign sites located nearby them. The purpose of our website is to help a customer to schedule his trip from beginning to the end by giving detail information regarding his trip and how can he fully excess all the features of our website. A traveler can use our website to manage his trip in economic and planned way.

1.2 INTENDED AUDIENCE

Voyager is created for people of all age groups. Families, Friends, Students, Teachers and any 18+ individual who likes to travel and explore places. The final product of our website will be ready and made available publicly in first phase and after some feedback from customer, it will be made accessible commercially to overall class of customers for the reservations of cabin, restaurant, hotels, renting boat, fishing and campaign sites.

2 SYSTEM OVERVIEW

The application will be separated into two layers: Front-end and Back-end. Front-end includes Input layer and Presentation layer while Back-end includes Control Layer and Database Layer. Front-end will provide interactive user interface and the back-end will be used for business logic and to communicate with website UI using HTTP request.

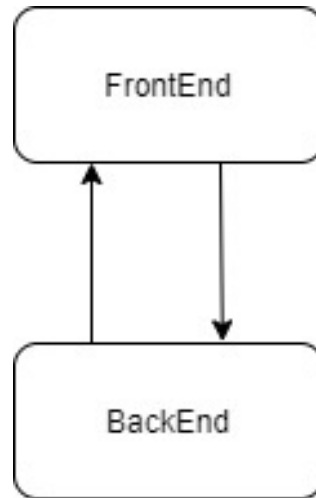


Figure 1: A simple architectural layer diagram

2.1 FRONT-END

This layer is the user interface which displays detail information to user about features of the website. The front-end will take user input which can be sent to the other layers. Interface of the front-end include sign up and login page where a user can create the account and edit their personal information or sign in to existing account. Once a user logs into the website, he or she can search for the hotels, camping site, lakes, popular restaurant, and places for entertainment within certain range. There will a section where a user can share his or her experience and stories. The web app will include updated and accurate information about the destination site which makes the website user friendly.

2.2 BACK-END

This layer will be responsible to add and store information in the database, perform logical task such as user validation and authentication. Most data and operating syntax are stored and accessed in this layer. The back-end application may interact directly with the front-end or it may be called from an intermediate program that mediates front-end and back-end activities. This layer focuses on network scalability and availability, database management, data transformation, data backup practice, and automated testing framework.

3 SUBSYSTEM DEFINITIONS & DATA FLOW

Here is the diagram that shows how data flow between different subsystem.

This figure 2 shows that different sub layers and modules that are involved in the front-end and back-end layers of the application. The front-end is divided into different modules related to a main functionality of the web app, registration, logging in and creating new user account which is based on website UI subsystem. The back-end is separated into layers for interacting with the front-end, performing business logic, data handling, updating, reading and deleting information from database for all of the web app functionalities.

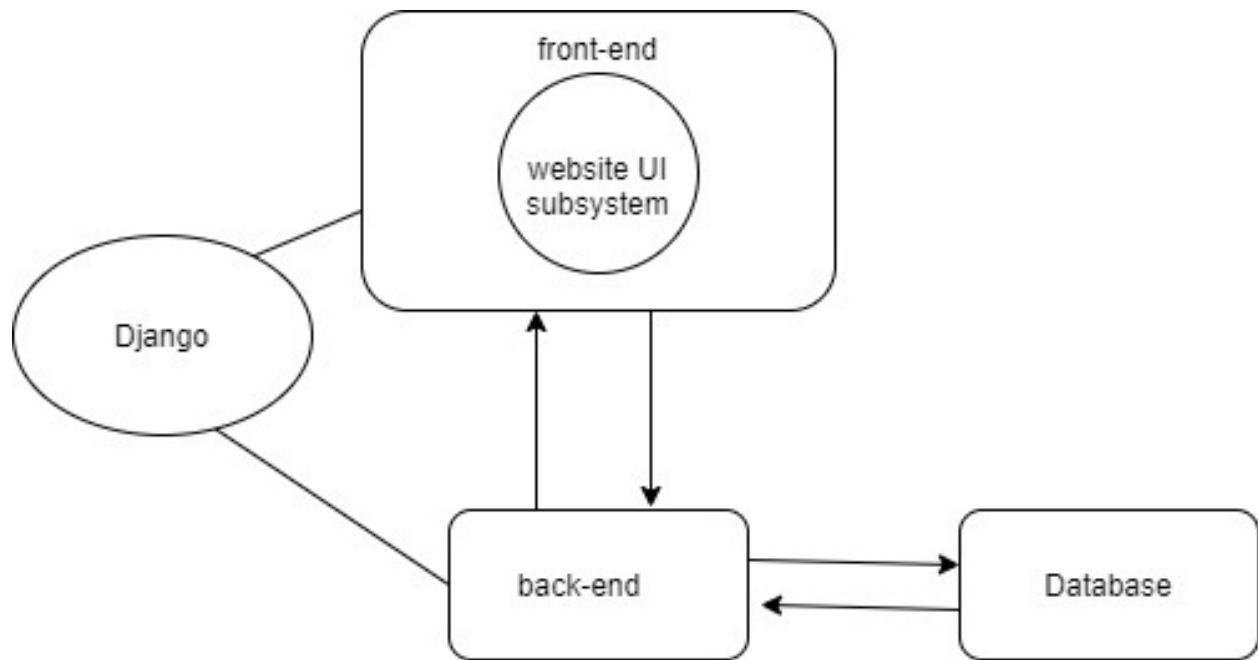


Figure 2: A simple data flow diagram

4 WEBSITE LAYER SUBSYSTEMS

The front end layer will have three major subsystem: sign in page, user profile page and album page.

The general purpose of each page is:

sign in page: : allow a user to sign up for an account or sign in into the existing account

profile page: allow a user to edit and view personal information.

album page: allow a user to upload their traveling photos and videos.

The figure explain how data flow in this subsystem.

4.1 WEBSITE UI SUBSYSTEM

This will be the user interface of our web app. Website UI will include 4 different layers: admin layer, contributor layer, visitor layer and existing user layer. This will be software only application so there won't be any hardware component involved in this project.

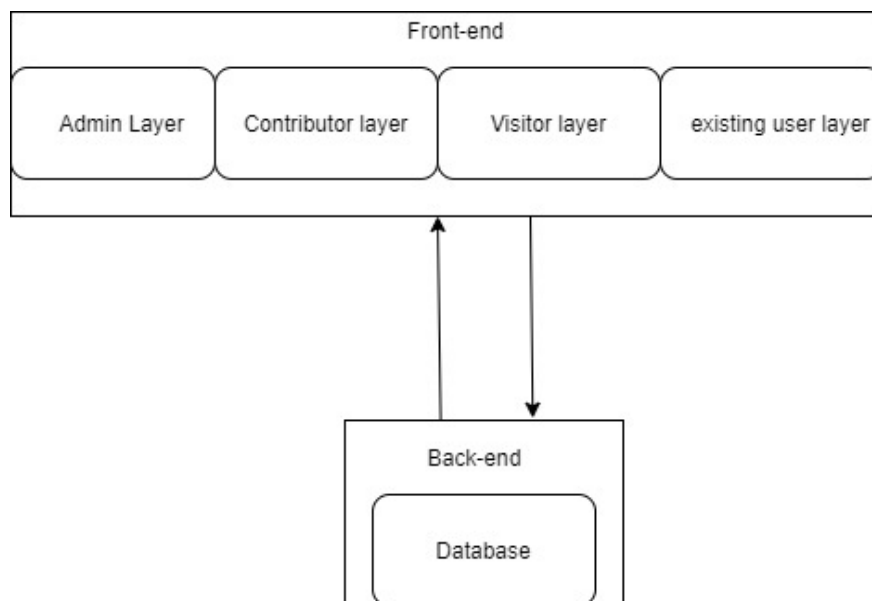


Figure 3: Example subsystem description diagram

4.1.1 ASSUMPTIONS

- a user has access to reliable internet.
- a user is able to use the website features.

4.1.2 RESPONSIBILITIES

some of the responsibilities and features of the sub system are:

admin layer: perform administrative task such as design, develop, maintain and troubleshoot website.

contributor layer: upload traveling photos and videos, and add comment, criticise and share their opinion.

visitor layer: get quick insight and scroll down the page,

existing user layer: user can add, edit and delete their personal information.

4.1.3 SUBSYSTEM INTERFACES

This is the table with an entry for each labelled interface that connects to this subsystem.

Table 2: Subsystem interfaces for website UI

ID	Description	Inputs	Outputs
#1	admin layer	design, develop, maintain, and troubleshoot website	ensure a safe and efficient user experience
#2	contributor layer	upload traveling photos, videos, add comment, criticise and share opinion	promote website
#3	visitor layer	quick insight and scroll down the page	gets traveling information
#4	existing user layer	add, edit, delete their personal information such as username, password, email, address, phone number, DOB	create user account

4.2 SUBSYSTEM DATA PROCESSING

The subsystem will send and retrieve data from data base.

5 SERVER LAYER SUBSYSTEMS

This section shows the connection between the server, user and the back-end developer.

5.1 GOOGLE API

This subsystem allows to communicate with google services such as google maps,search,location tracking.

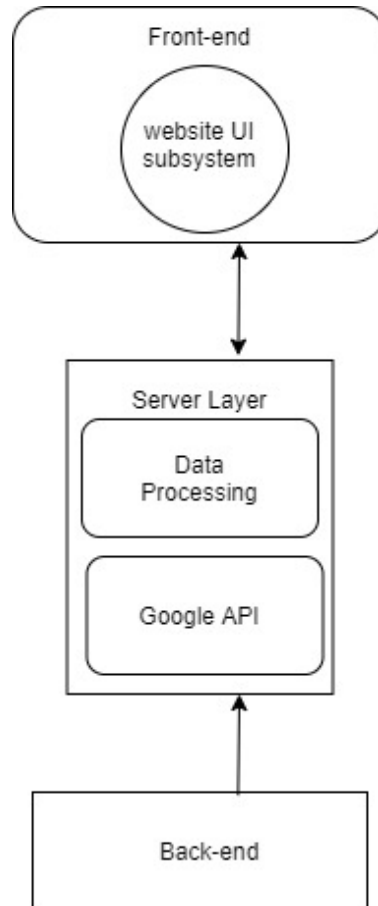


Figure 4: Example subsystem description diagram

5.1.1 ASSUMPTIONS

- a user has access to reliable internet.
- a user is able to use the website features.

5.1.2 RESPONSIBILITIES

Some responsibility of Google API are:

- Return the correct information as input by the user.
- Locate the exact location that the user is looking for.

5.1.3 SUBSYSTEM INTERFACES

Table 3: Subsystem interfaces

ID	Description	Inputs	Outputs
#1	Search	search for the destination	the location/area is displayed with the user preference
#2	track Location	user searches for location	allows user to track the location of the specific place

6 BACK-END SUBSYSTEM

The Back-end layer also known as database layer is responsible for handling the database and some other back-end maintenance work such as updates and fixing the errors. This field is also responsible for deleting and adding any new features to the website. Here the information of the user is also stored in the database using fire-base platform.

6.1 USER INFORMATION LAYER

This layer is responsible for the collecting the information of the user. The information is then stored in the database.

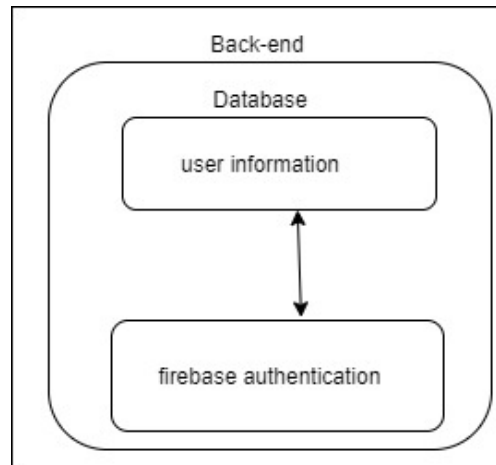


Figure 5: Example subsystem description diagram

6.1.1 ASSUMPTIONS

- the user has proper access to the website.
- the action is taking place within the back-end/ between the database and the server layer.

6.1.2 RESPONSIBILITIES

The sub layer will collect all the information from the user such as: user id, password and other personal information. This layer is also responsible for tracking the user responses and give perfect feedback. for example: If the user wants to change the password of his/her account then this layer should retrieve the information from the database and match/check the credentials and allow the user to take the action.

6.1.3 SUBSYSTEM INTERFACES

Table 4: Subsystem interfaces

ID	Description	Inputs	Outputs
#1	User Information	name, address	data stored in the database
#2	User credentials	Passwords security questions	Data stored in the database

6.2 FIRE BASE AUTHENTICATION

Fire base Authentication provides back end services and ready-made UI libraries to authenticate users to the website. It supports authentication using passwords, phone numbers, etc. so as to verify the user and protect the data from hacking and misusing.

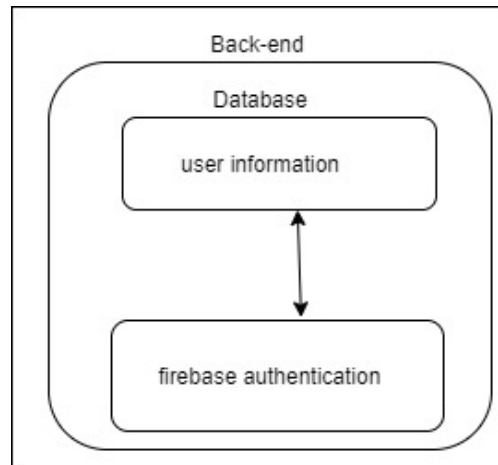


Figure 6: Example subsystem description diagram

6.2.1 ASSUMPTIONS

- the user is able to use his/her proper credential to login to the website.
- the system checks for the false and wrong authentication and doesn't allow the user into the website if the credential doesn't match.

6.2.2 RESPONSIBILITIES

The fire base is responsible for storing the user information. This layer also checks for the right credential and authorize the user into the website with correct information. It also provides the information stored in the database and displays it to the user according to the request like: user information and as well as the location and place information that are on the database.

6.2.3 SUBSYSTEM INTERFACES

Table 5: Subsystem interfaces

ID	Description	Inputs	Outputs
#1	Registration	name username password address email security question and answer	data stored in the database
#2	Login	user id and Pass- words	Data stored in the database
#3	Change the password and personal information	user id Passwords security question	Data stored in the database

REFERENCES