TRAVEL BUDDY

SMART TRAVEL RECOMMENDATION AND TOURISM SUPPORT MOBILE BASED SYSTEM

Project ID : 2023-308

SLIIT
FACULTY OF COMPUTING

SUPERVISION PERSONALITIES

Supervisor:

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Lecturer

Faculty of Computing | Information Technology

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Head | Department of Information Technology

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Content

1 Research Problem

2 Main Objective

3 Overall System Diagram

4 Individual Components

Research Problem

1. Absence of a comprehensive mobile platform capable of offering travelers' recommendations and support on an individual basis.
2. Tourist frequently struggle to find acceptable locations and communication barriers.
3. No efficient system to analyze user preferences/emotions for recommendations.
4. There is no such a system that can provide information about locations by allowing the system to recognize them and helping to explore new places in an efficient way.

Main Objective

The main outcome of the Smart Travel Recommendation and Tourism Support Mobile-Based System is to provide tourists with personalized and real-time recommendations, location discovery, tourist assistance, emotional analysis, and support services to enhance their travel experience in Sri Lanka.

Sub Objective

Tourist Assistant

Offer a tourist assistant for guided tours with emergency support, location information, and accurate responses to tourist questions.

Location Detection

Enhance the tourist experience by delivering real-time, personalized information and improving recommendation accuracy and effectiveness.

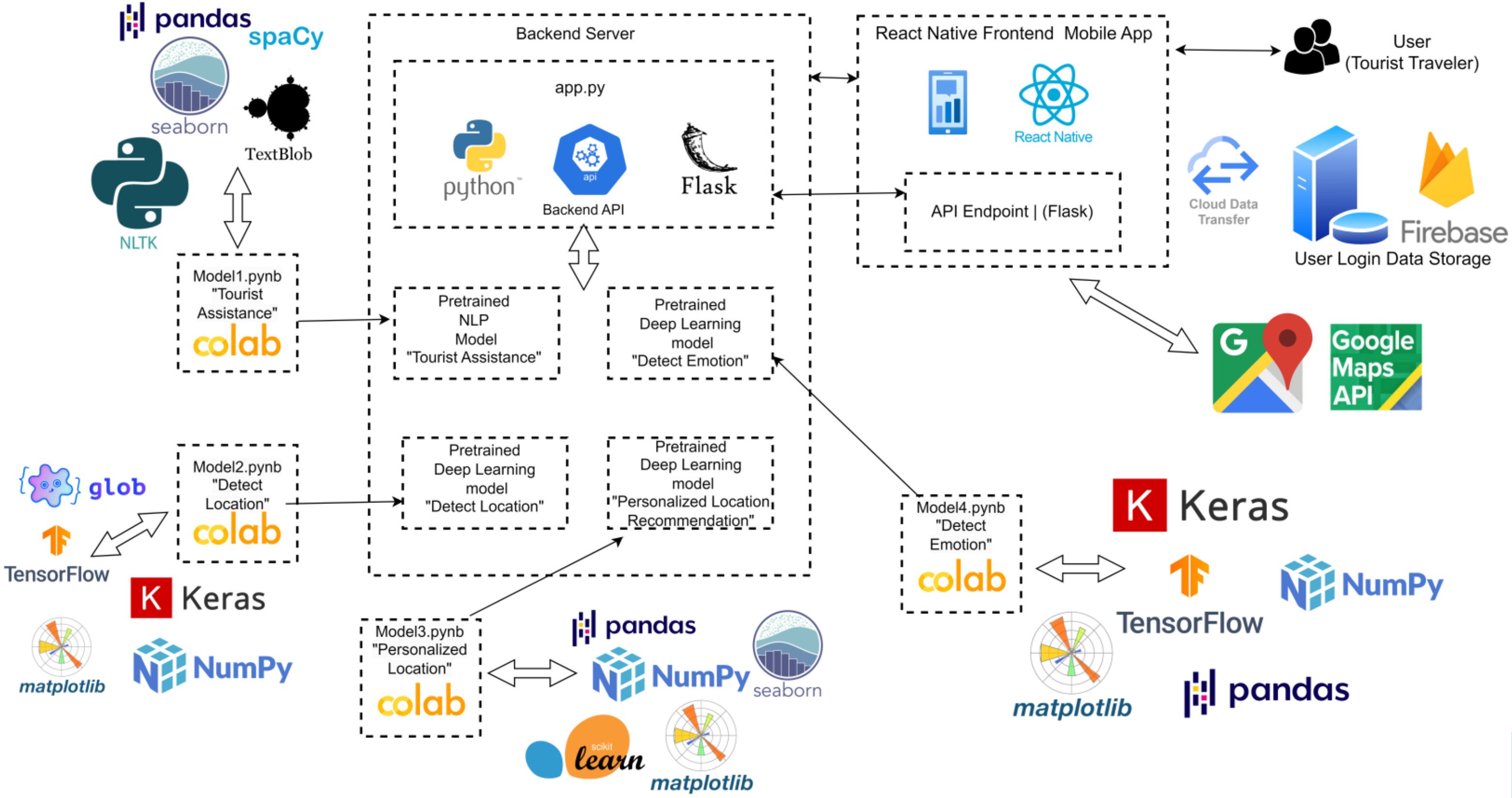
Location & Service Recommendation

Provide information about locations by allowing the system to recognize them and helping to explore new places and information in an efficient way.

Emotion Detection

Accuratly identifiy the emotions of the user and suggest Activities according to their emotional state

System Architecture Diagram



Individual Components

IT20029968 | Athukorala Y.J

Specializing in Information Technology

Developing a tourist assistant chatbot that uses natural language processing algorithms to assist tourists in their travels.

Provide a tourist assistant to guide the tour with,

- emergency support contact information,
- location information,
- local food information,
- provide answers to tourist's frequently asked questions

Research Question

- Many travelers face problems in getting reliable and accurate information and helpful tips during their travels.
- Limited knowledge of the local language, culture, and foods, which can make it difficult for them to communicate with locals and navigate unfamiliar areas.
- Guidebooks or online travel websites, may not provide relevant information about Sri Lanka for tourists.
- Lack of knowledge about emergency support contact information, travel location information, local foods, and travel tips.

My Objectives

Collection of question asked by tourists. Creating questions and relevant answers based on collected the data and information.

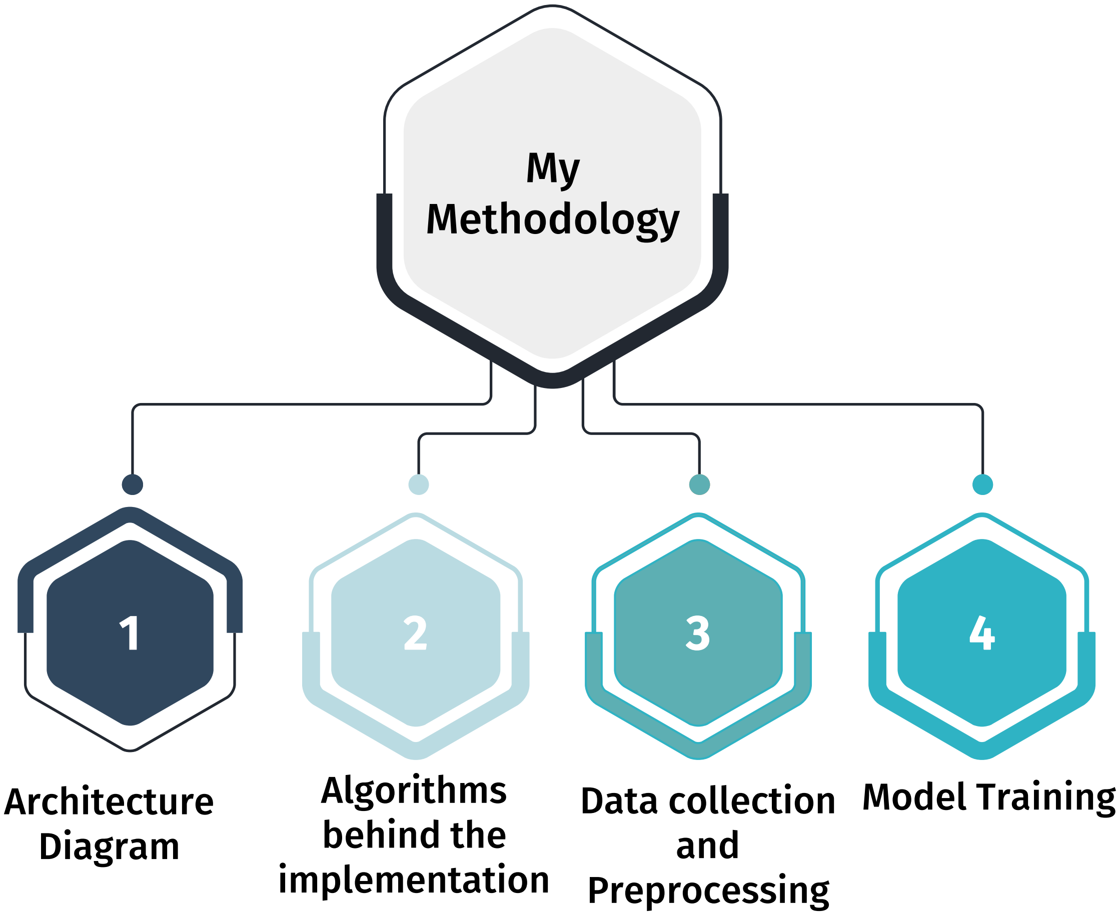
- Interviewing with Tourists
- Internet Resources
- Youtube Tourist Travel Vloggers

Preprocessing of the questions and answers dataset

- Creating question and answers according to collected data and information
- Handling missing values by filling them with "null_value."“
- tokenization, stop word removal, and TF-IDF vectorization.

Create necessary Model file and Train and Test the Model

Deploy NLP model using Flask API and implement the model through the Flask API into Android App.



My Methodology

1 Architecture Diagram

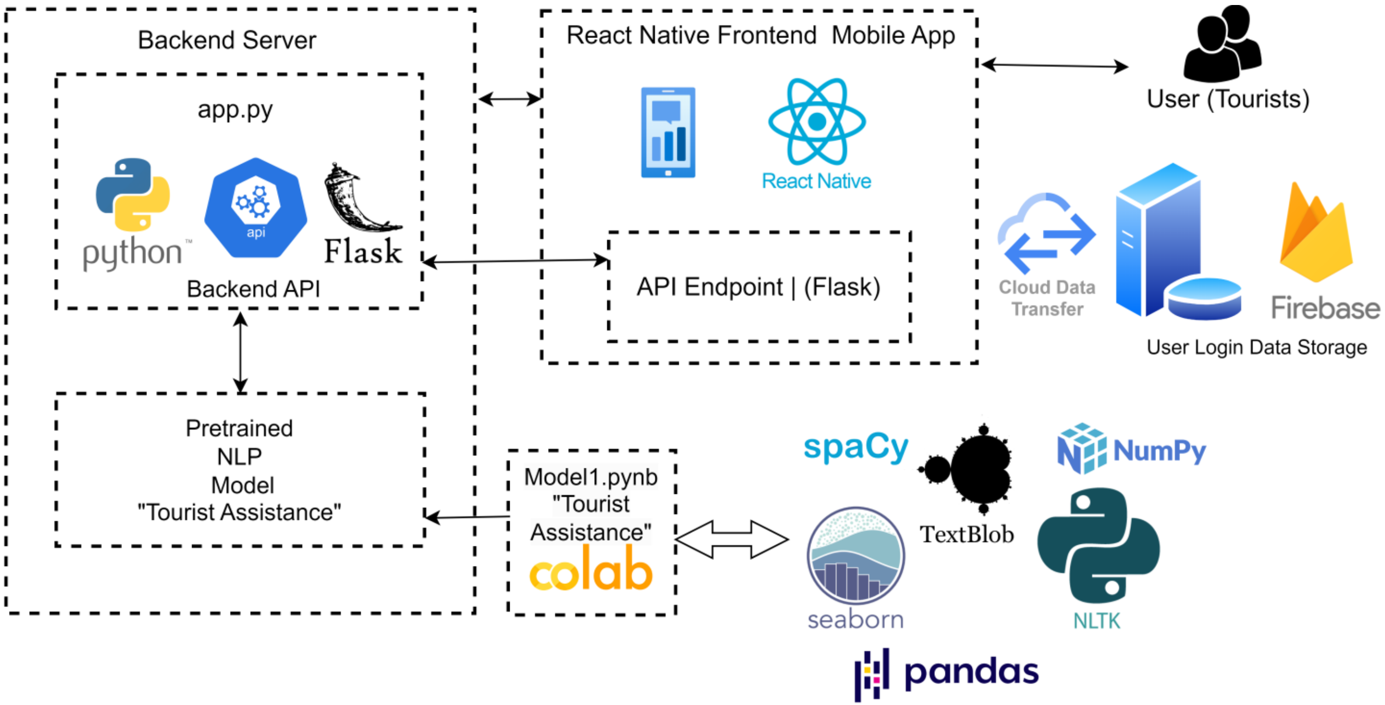
2 Algorithms behind the implementation

3 Data collection and Preprocessing

4 Model Training

METHODOLOGY

System Overview Diagram



Algorithms behind the implementation

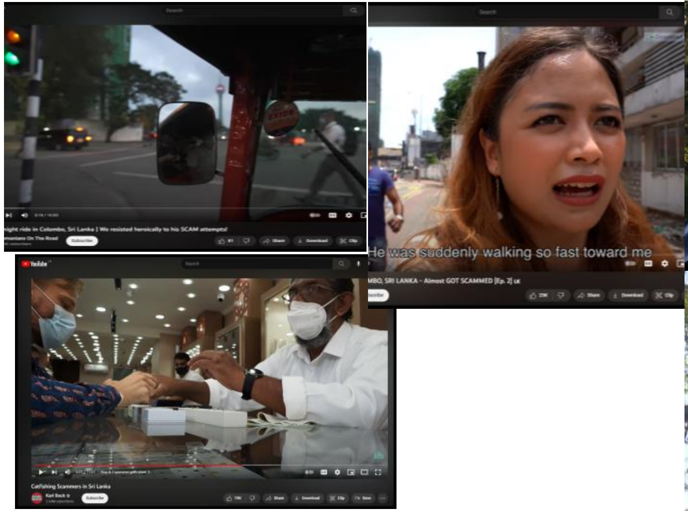
Multinomial Naive Bayes classifier → Why???

- Multinomial Naive Bayes was chosen as the model in this code likely because it is a simple and efficient algorithm for text classification tasks, especially when dealing with a large number of features (words in this case).
- It works well for tasks where the features are discrete, like word counts in a text document.
- Naive Bayes models are also known for their speed and can perform well with relatively small to medium-sized datasets.

Data collection and Preprocessing

Data Collection

- Gather Location, food, culture, scams information
- Creating questions and relevant answers based on collected the data and information.
- Creating a training data set and testing dataset



ight ride in Colombo, Sri Lanka | We resisted heroically to his SCAM attempts!

manians On The Road

He was suddenly walking so fast toward me

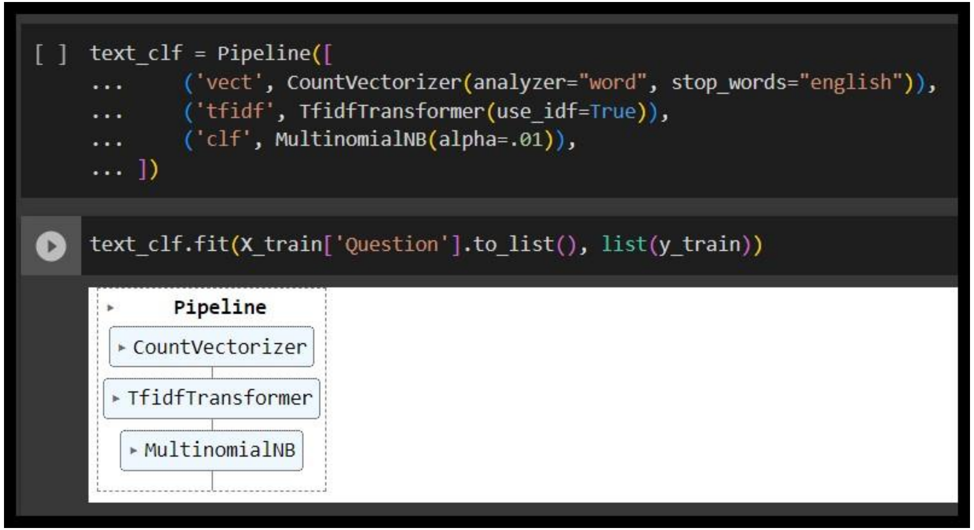
MBO, SRI LANKA - Almost GOT SCAMMED [Ep. 2] uk

Catfishing Scammers in Sri Lanka

Karl Rock

Data Collection and Preprocessing

- Data Preprocessing
- Handling missing values by filling them with "null_value.“
- Tokenization
- stop word removal
- TF-IDF vectorization

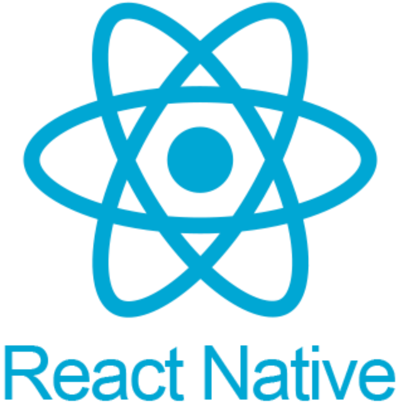


```
[ ] text_clf = Pipeline([
    ...     ('vect', CountVectorizer(analyzer="word", stop_words="english")),
    ...     ('tfidf', TfidfTransformer(use_idf=True)),
    ...     ('clf', MultinomialNB(alpha=.01)),
    ... ])
```

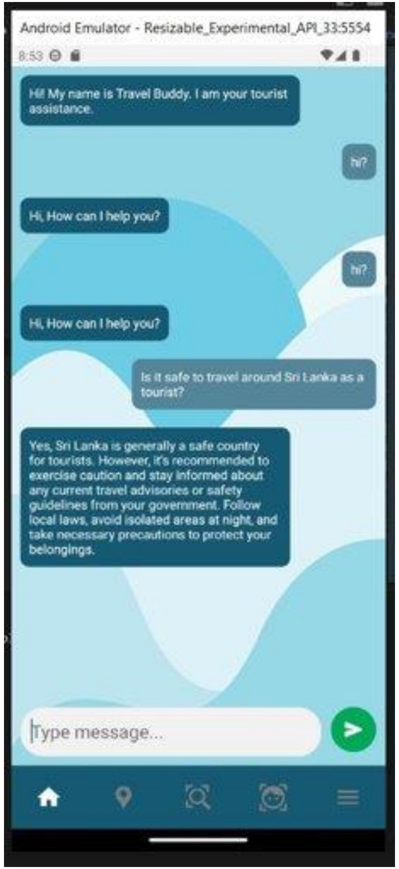
```
text_clf.fit(X_train['Question'].to_list(), list(y_train))
```

Backend & Frontend Technology Stack

- Python
- Flask
- React Native
- Firebase



Results and Achievements



Android Emulator - Resizable_Experimental_API_33:5554

8:53

Hi! My name is Travel Buddy. I am your tourist assistance.

hi?

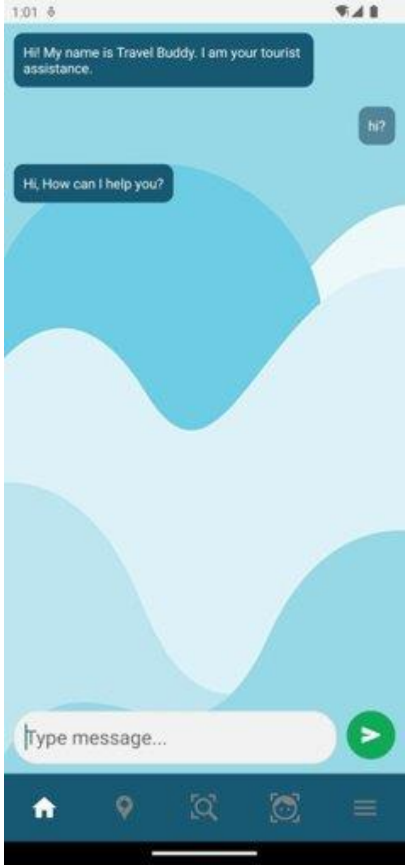
Hi, How can I help you?

hi?

Hi, How can I help you?

Is it safe to travel around Sri Lanka as a tourist?

Yes, Sri Lanka is generally a safe country for tourists. However, it's recommended to exercise caution and stay informed about any current travel advisories or safety guidelines from your government. Follow local laws, avoid isolated areas at night, and take necessary precautions to protect your belongings.

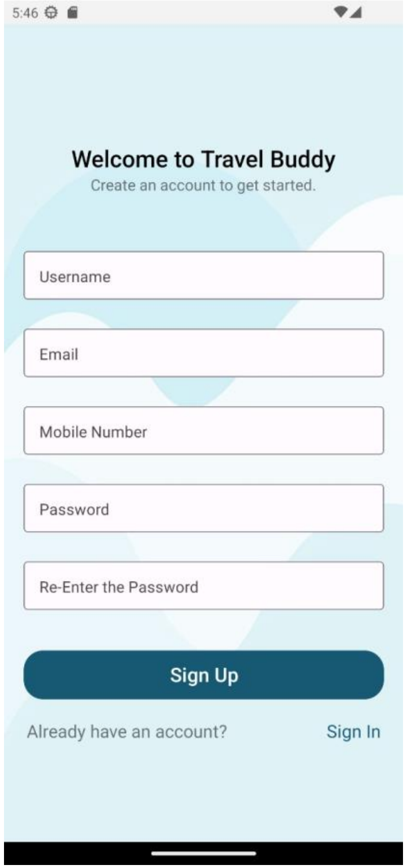


1:01

Hi! My name is Travel Buddy. I am your tourist assistance.

hi?

Hi, How can I help you?

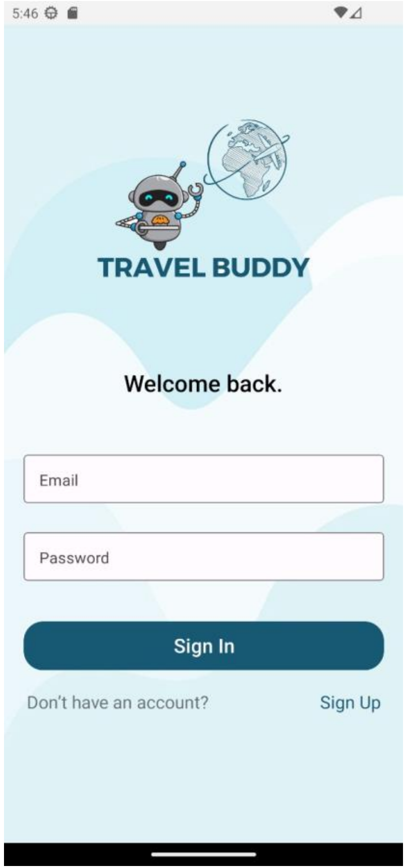


5:46

Welcome to Travel Buddy

Create an account to get started.

Already have an account? Sign In



5:46

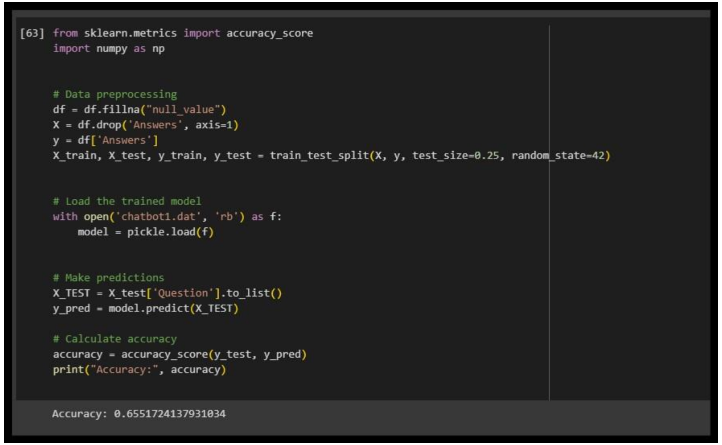
TRAVEL BUDDY

Welcome back.

Don't have an account? Sign Up

Results and Achievements

- In the model training, increase accuracy 0.65 -> 0.758
- 65.5% ---> 75.6 %



```
[63] from sklearn.metrics import accuracy_score
     import numpy as np

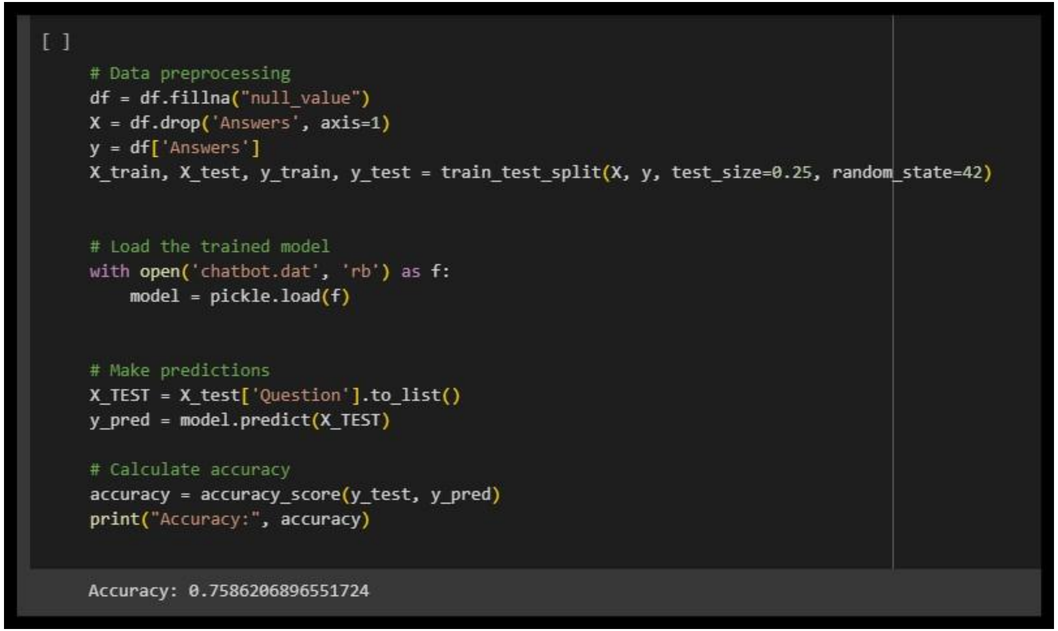

     # Data preprocessing
     df = df.fillna("null_value")
     X = df.drop('Answers', axis=1)
     y = df['Answers']
     X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.25, random_state=42)


     # Load the trained model
     with open('chatbot1.dat', 'rb') as f:
         model = pickle.load(f)


     # Make predictions
     X_TEST = X_test['Question'].to_list()
     y_pred = model.predict(X_TEST)

     # Calculate accuracy
     accuracy = accuracy_score(y_test, y_pred)
     print("Accuracy:", accuracy)

     Accuracy: 0.6551724137931034
```



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     # Make predictions
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     y_pred = model.predict(X_TEST)

     # Calculate accuracy
     accuracy = accuracy_score(y_test, y_pred)
     print("Accuracy:", accuracy)

     Accuracy: 0.7586206896551724
```

Gantt Chart

Task Name	2022		2023											
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Planning Phase														
Initial discussion with the supervisor	🟦													
Feasibility study	🟦	🟦												
Requirement analysis	🟦	🟦												
Literature review		🟦	🟦											
System overview diagram		🟦	🟦											
Topic assesment form		🟦	🟦											
Project proposal			🟦	🟦										
Prepaering SRS Document				🟦	🟦									
Software Design Phase														
UML diagram				🟦	🟦									
Design wireframe & mock-ups					🟦									
Implementation Phase														
Collection dataset					🟦									
Training Model					🟦	🟦	🟦	🟦	🟦	🟦				
Frontend development									🟪	🟪	🟪			
Backend development									🟪	🟪	🟪			
Testing Phase														
System Training										🟪	🟪			
Bug fixing										🟪	🟪			
Documentation Phase														
Research paper									🟦	🟦				
Final report										🟪	🟪	🟪		
Project status document & Log book										🟪	🟪	🟪		
Final Presentation & Viva											🟥	🟥		
Integration Phase														
Intigrate backend and frontend												🟥		

REFERENCES

[1] S. L. T. D. Authority, "Sri Lanka Tourism Development Authority," [Online]. Available: https://www.sltda.gov.lk/.

[2] K.K.D.N. Dilshan, C.A.J.P. Chandranath, U.M.D.M. Parussella, Samantha Thelijjagoda, H.M.C.J. Herath and Thilini Jayalath, "JESSY: An Intelligence Travel Assistant," 2021.

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[5] Jiang, S., Wu, B., Li and H., "Tourist chatbot: An AI-based tool for improving tourist," Journal of Travel Research, 2019.

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[9] C. S. S. Isuru Jayaweera, "Crime Analytics: Analysis of Crimes Through," p. 06. [10] M. K. R. S. O. Christian Sunday Nwankwo, "APPLICATION OF DATA ANALYTICS TECHNIQUES IN ANALYZING," p. 08, 2018.

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IT20051020 | SHAMINDA W.G.T.

B.Sc.(Hons) in Information Technology Specializing in Information Technology

Developing a system that recognize historical places, monuments, tourist attractive places, destinations through smart phone camera and provide relevant details about them. In current situations of Sri Lanka, this system will replace as tourist guide service and very easy to handle

Research Question

- There are many apps to identify many objects. But in tourism industry there are no accurate app to identify places, tourism attractive places.
- The assistance of a guide is essential when a foreigner wants to know more about places in Sri Lanka.
- Another problem facing foreign tourists is the lack of tour guides due to the economic crisis in Sri Lanka.
- Difficulty in providing guidance to all tourists visiting Sri Lanka is a problem for tour guides
- Is the tourist guide school 100% true? Can they be trusted?
- For these reasons, the location/places identification system shows the need.

Specifics And Sub Objectives

Specific Objective

Detect Places, and analysis them using machine learning and image processing

Sub Objective

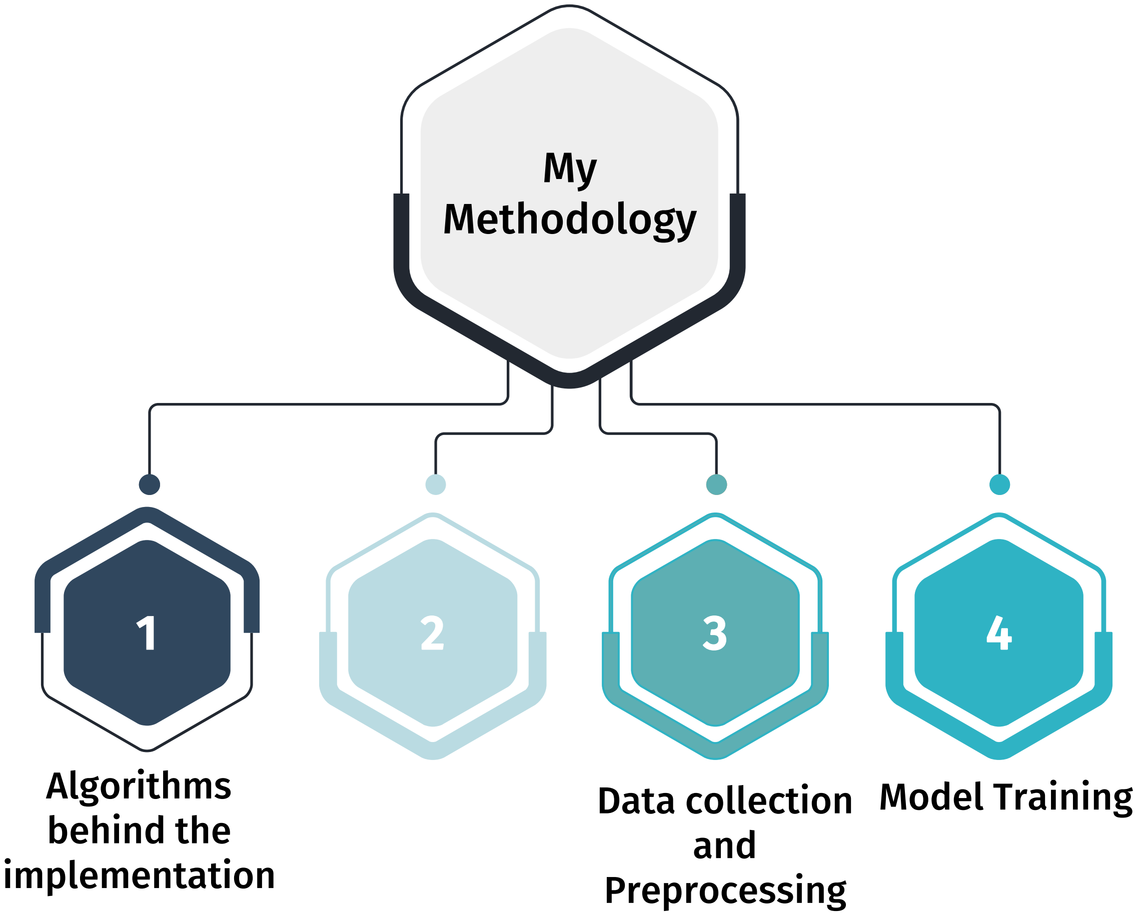
- Collecting data sets
- Creating data sets into normalized form
- Taking photos and videos
- Identifying places
- Add relevant details to places
- Create a ML model to identify place will commit a places/locations based on get discovered datasets
- Identifying the best algorithm for place/ detection.
- Fine tuning and testing of analyzing model to increase accuracy of the results.

Methodology

- Collect data about the historical places, monuments, and tourist destinations that the system will recognize. This can include images, video, and text descriptions. You can gather this information from various sources, such as government websites, travel blogs, and tourist guides.

- Once collected the data, need to train the system to recognize the historical places, monuments, and tourist destinations. This involves using machine learning algorithms to identify patterns and features in the images and other data. Use existing machine learning frameworks, such as TensorFlow or Keras, to train the system.

- After developed the app, need to test it thoroughly to ensure that it works as intended.



My Methodology

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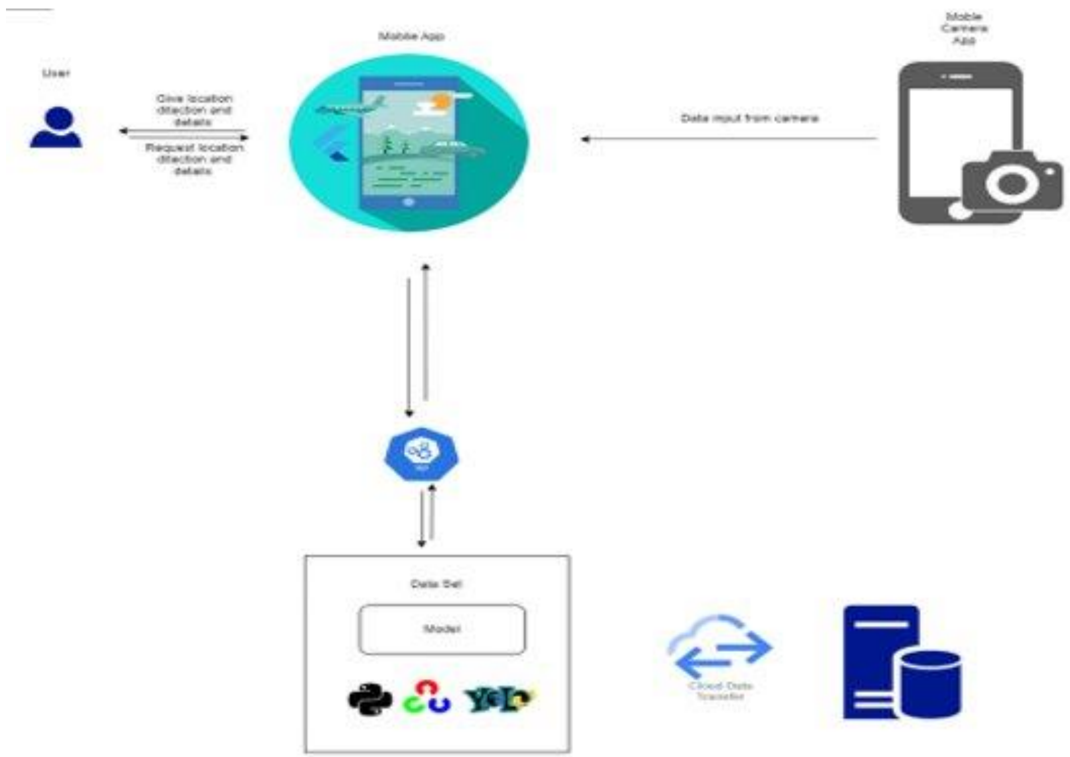
Algorithms behind the implementation

Data collection and Preprocessing

Model Training

METHODOLOGY

System Diagram:



Algorithms behind the implementation

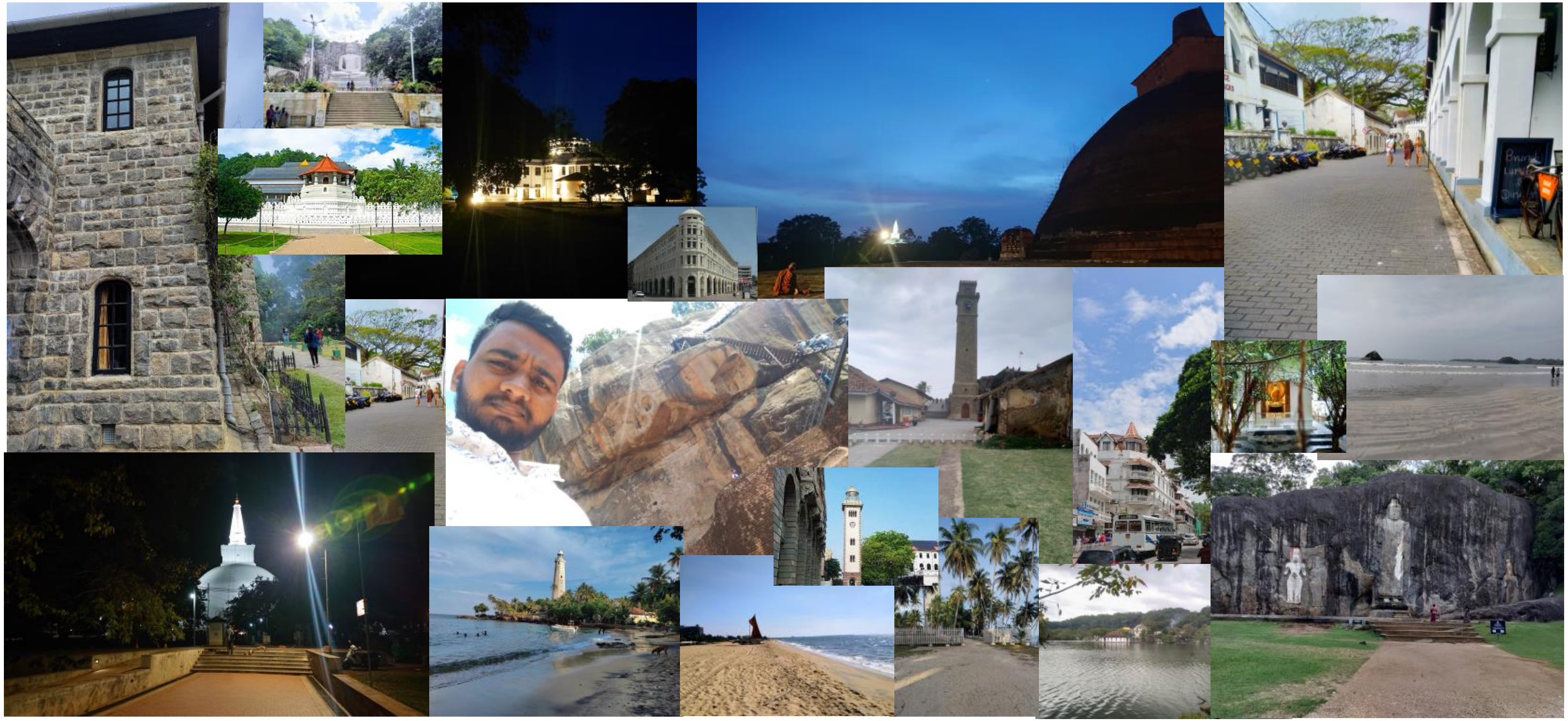
1. **Loading Pre-trained Model:** *Loads a pre-trained ResNet-50 model with weights from ImageNet and freezes its layers for transfer learning.*
2. **Model Architecture:** *Creates a custom classification model by adding a Flatten layer and a Dense layer on top of the ResNet-50 base.*
3. **Model Compilation***: Compiles the custom model with a categorical cross-entropy loss function, the Adam optimizer, and accuracy as the evaluation metric.*
4. **Data Augmentation:** *Applies data augmentation techniques to the training dataset, enhancing the model's ability to generalize from limited data*
5. **Data Generators:** *Sets up data generators for training and validation datasets using ImageDataGenerator.*
6. **Training:** *Trains the model on the training dataset for 50 epochs, using the specified data generators.*
7. **Saving the Model:** *Saves the trained model to a file named 'place_model.h5'.*
8. **Making Predictions***: Loads the saved model and uses it to predict the class of input images.*

METHODOLOGY

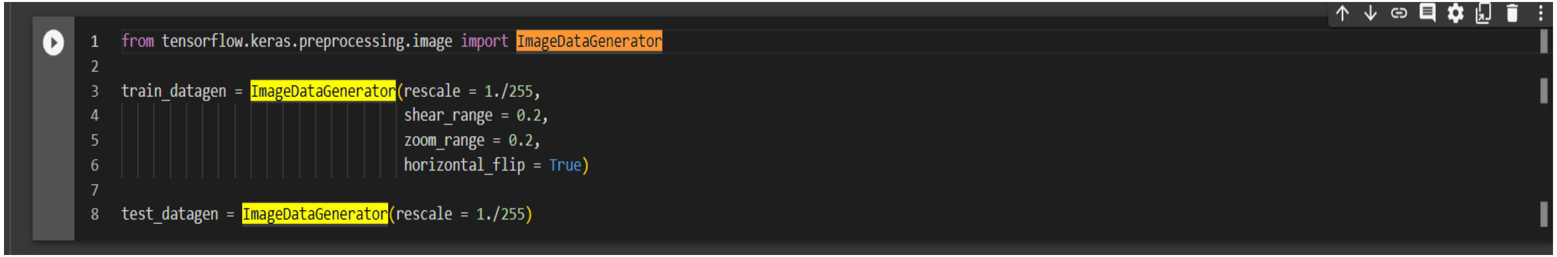
Technologies

- Python
- Open CV
- Fire Base
- TensorFlow

Data collection and Preprocessing



Data collection and Preprocessing



```python
from tensorflow.keras.preprocessing.image import ImageDataGenerator

train_datagen = ImageDataGenerator(rescale = 1./255,
                                   shear_range = 0.2,
                                   zoom_range = 0.2,
                                   horizontal_flip = True)

test_datagen = ImageDataGenerator(rescale = 1./255)
```

- Data Rescaling:
- Data Augmentation
- No Data Augmentation for Testing Data

Backend & Frontend Technology Stack

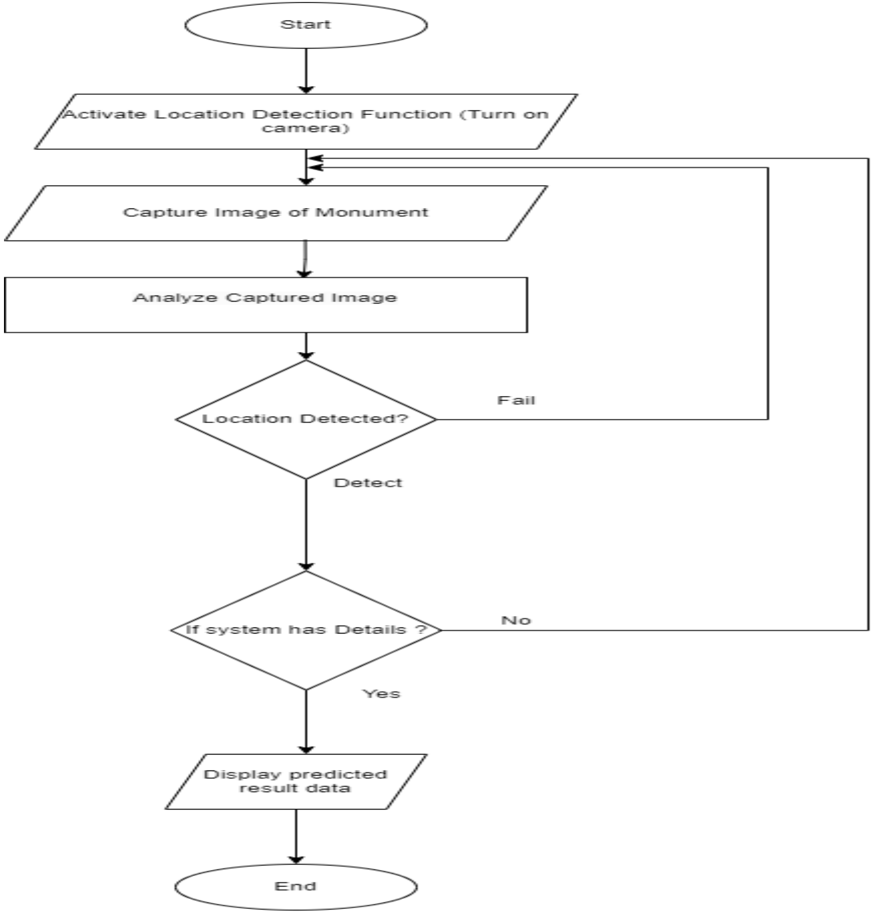
Frontend

- React Native

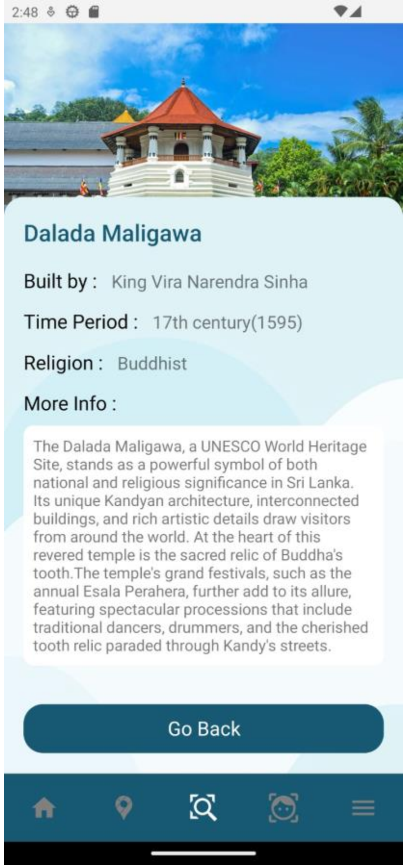
Backend

- Flask
- Firebase
- Python

Flow Chart


Start
Activate Location Detection Function (Turn on camera)
Capture Image of Monument
Analyze Captured Image
Location Detected?
Fail
Detect
If system has Details ?
No
Yes
Display predicted result data
End

Results and Achievements



2:48

Dalada Maligawa

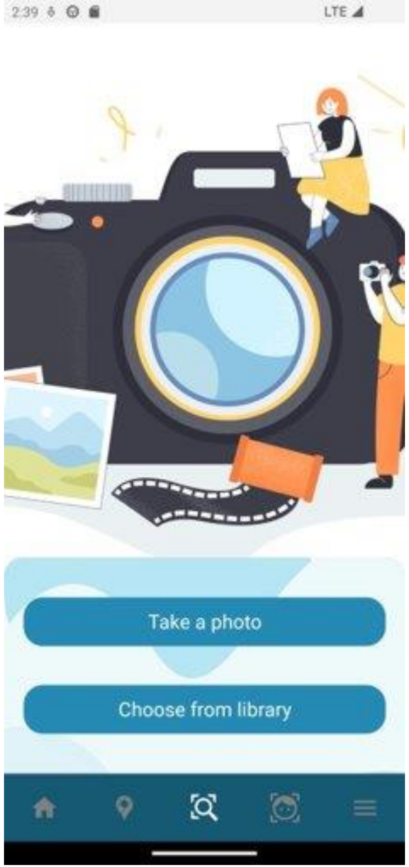
Built by : King Vira Narendra Sinha

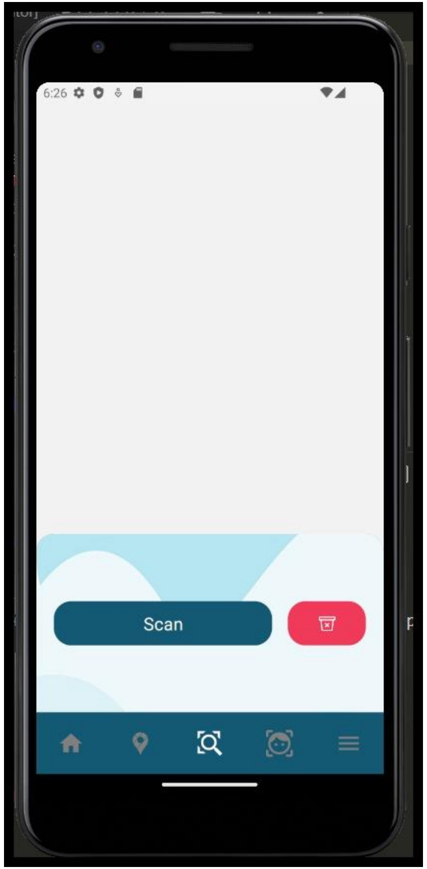
Time Period : 17th century(1595)

Religion : Buddhist

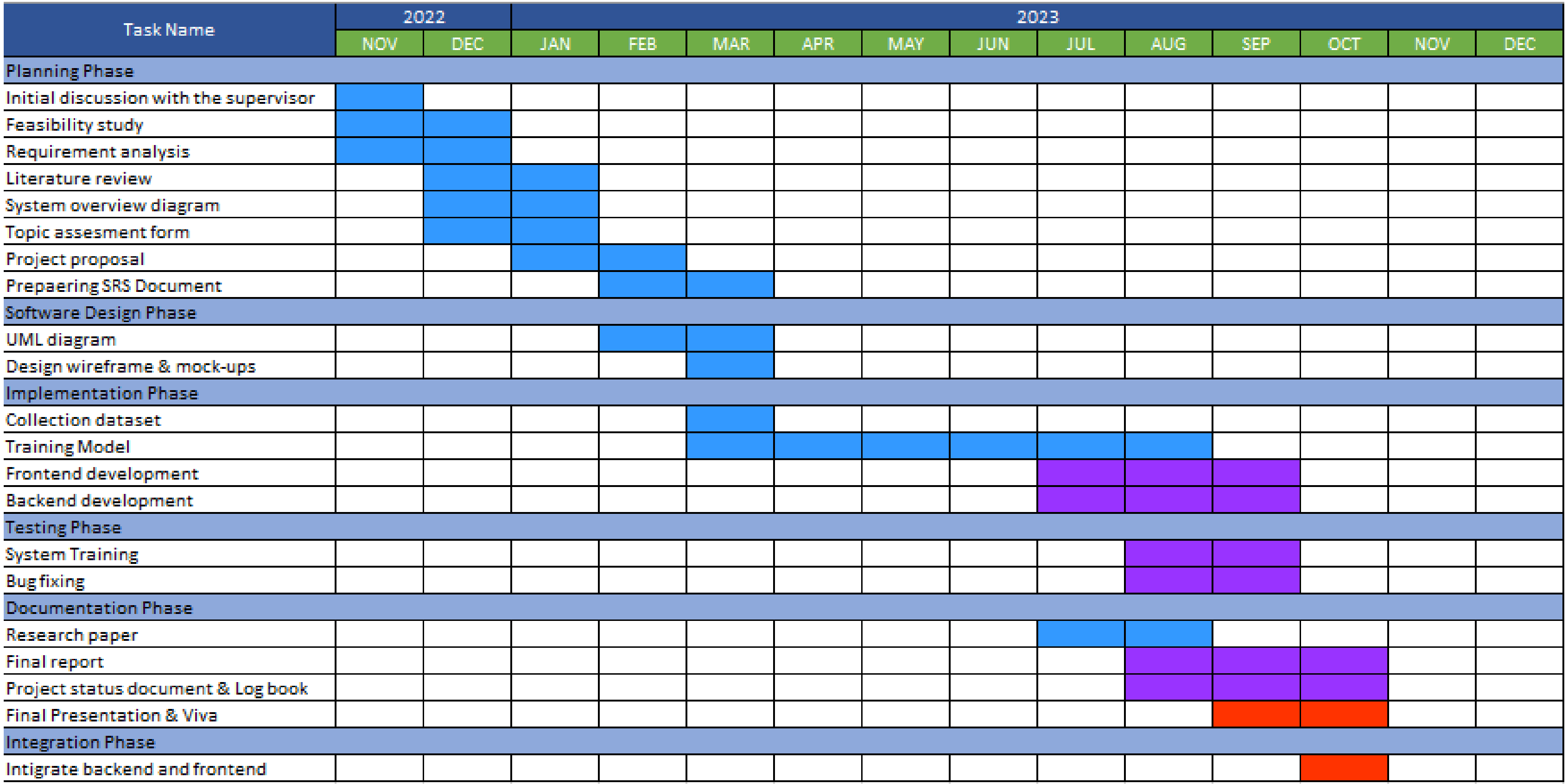
More Info :

The Dalada Maligawa, a UNESCO World Heritage Site, stands as a powerful symbol of both national and religious significance in Sri Lanka. Its unique Kandyan architecture, interconnected buildings, and rich artistic details draw visitors from around the world. At the heart of this revered temple is the sacred relic of Buddha's tooth.The temple's grand festivals, such as the annual Esala Perahera, further add to its allure, featuring spectacular processions that include traditional dancers, drummers, and the cherished tooth relic paraded through Kandy's streets.





Gantt Chart



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Collection dataset					🟦									
Training Model					🟦	🟦	🟦	🟦	🟦	🟦				
Frontend development									🟪	🟪	🟪			
Backend development									🟪	🟪	🟪			
Testing Phase														
System Training										🟪	🟪			
Bug fixing										🟪	🟪			
Documentation Phase														
Research paper									🟦	🟦				
Final report										🟪	🟪	🟪		
Project status document & Log book										🟪	🟪	🟪		
Final Presentation & Viva											🟥	🟥		
Integration Phase														
Intigrate backend and frontend												🟥		

References

[1] D. Buhalis, "Smart Tourism Destinations Enhancing Tourism Experience Through Personalisation of Services," p. 14, 2015.

[2] Santos-Júnior, Adalberto; Mendes-Filho, Luiz; Almeida García, Fernando; Manuel Simões, José;, Smart Tourism Destinations: a study based on the view of the stakeholders, p. 23, 2017.

[3] N. Godewithana, K. Jayasena, C. Nagarawaththa, P. Croos, B. Harshanath and J. Alosius, "Historical Places & Monuments Identification System," 2020.

[4] B. M. a. M. T. M. M. Etaati, "Cross Platform Web-based Smart Tourism Using Deep Monument Mining," 2019.

IT19192024 | JAYAWARDHANA E.H.K

B.Sc.(Hons) in Information Technology Specializing in Information Technology

Personalized location recommendation and service recommendation refers to the development of a system that provides relevant location and location-based service recommendations according to their specific travel preferences such as Location type, district, weather type, category, and budget.

From this system, the tourist can choose a place he wants to go to, after entering his preferences into the system, the best place is recommended according to his preferences.

Research Question

- There are many ways to identify places and services in the tourism industry based on technology. but tourism industry not fully digitalized.

- difficult to choose the places and services according to their preferences.

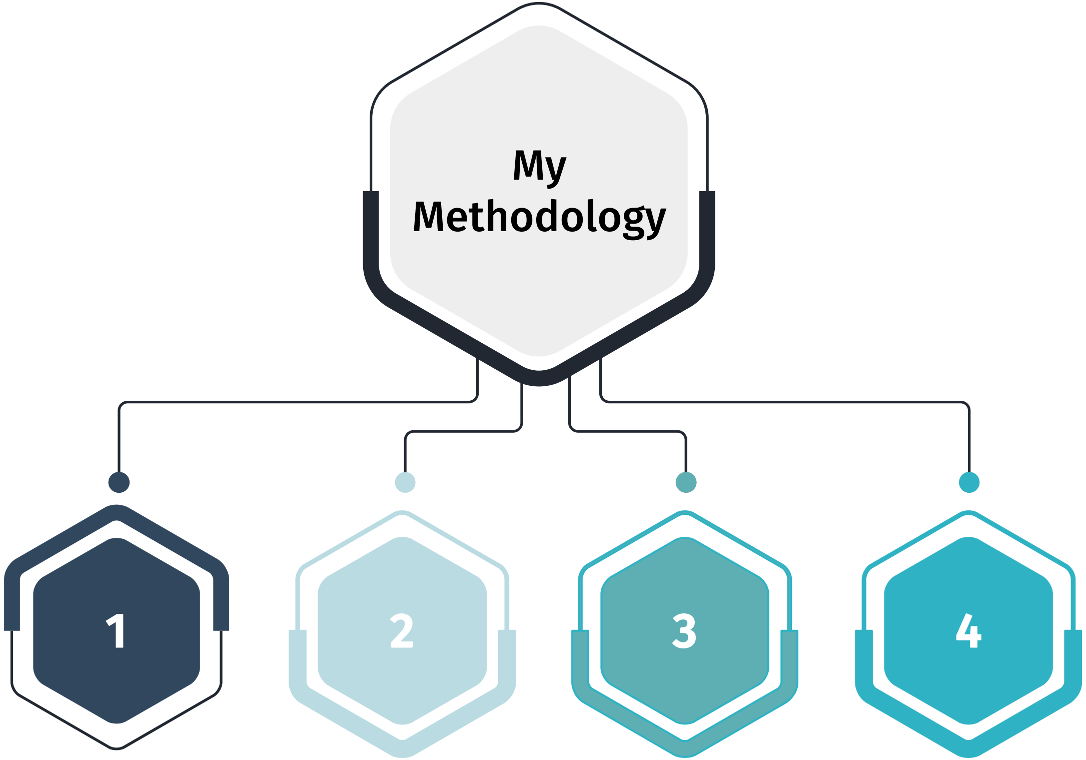
- Even if there is smartphone, does not recommend relevant location and location-based services that meet preferences such as Location type, district, weather type, category, and budget.

- This shows a need to provide recommendations based on data from personalized style, budget, category, preferences and behavior.

Specific and Objectives

- **SPECIFICS** - Personalized location recommendation and service recommendation is the provision of relevant location and location-based services tailored to their specific travel preferences such as Location type, district, weather type, category, and budget.

- **OBJECTIVE** - Provide a customized experience for tourists by providing them with relevant options in real time and making the recommendations more accurate and effective.



My Methodology

1

Architecture Diagram

2

Algorithms behind the implementation

3

Data collection and Preprocessing

4

Model Training

Algorithms behind the implementation

- Random Forest Regressor : An ensemble learning technique based on decision trees, often used for regression and classification tasks.

- Linear Regression : A simple linear model used for regression tasks.

- According to my data set, I got high accuracy from the Random Forest Regressor algorithm, so I used Random Forest algorithm.

Data collection and Preprocessing

- Loading the dataset from a CSV file ('Personalized_Locations.csv') using Pandas.
- Checking for missing values using a heatmap from Seaborn.
- Converting categorical features like 'District', 'Budget', 'Type', 'Weather Type', and 'Category' into numerical values using custom mapping functions.
- Applying Label Encoding to the 'Name' column to convert it into numerical values.
- Splitting the dataset into training and testing sets (80% train, 20% test).
- Standardizing the feature values using Scikit-Learn's StandardScaler.

Model Training

- The code trains both models (Linear Regression and Random Forest Regressor) on the preprocessed data.
- It calculates and prints the accuracy score for each model using the test dataset.
- It uses Mean Squared Error as the evaluation metric to compare the real and predicted values.
- It saves the trained Random Forest Regressor model using Pickle.

Methodology

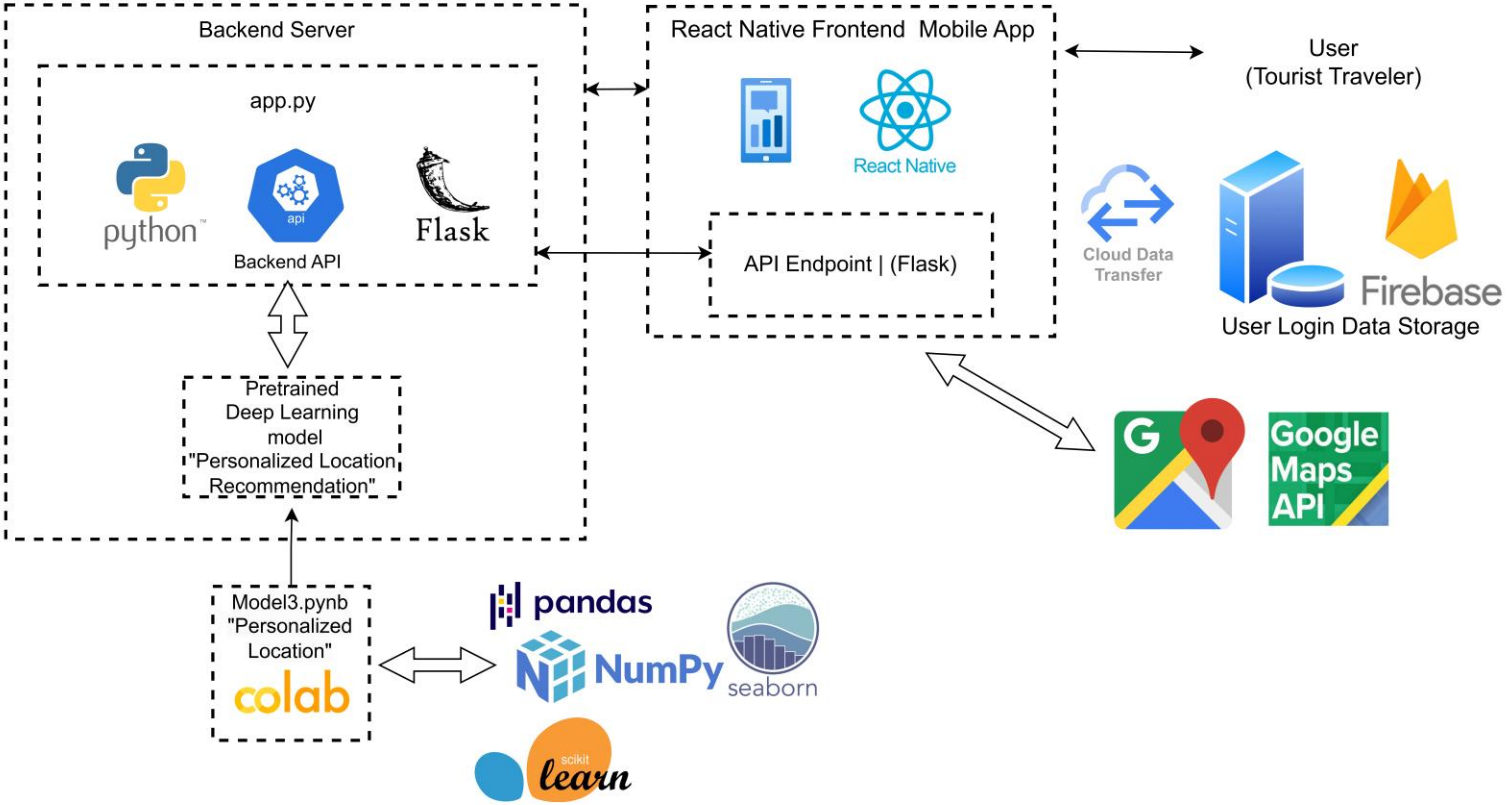
- **Random Forest Regressor**, on the other hand, is an ensemble model that combines multiple decision trees to capture complex nonlinear relationships in the data. It's known for its flexibility and ability to handle a wide range of data patterns.

- **Linear regression** is a simple linear model that assumes a linear relationship between input features and the target variable.

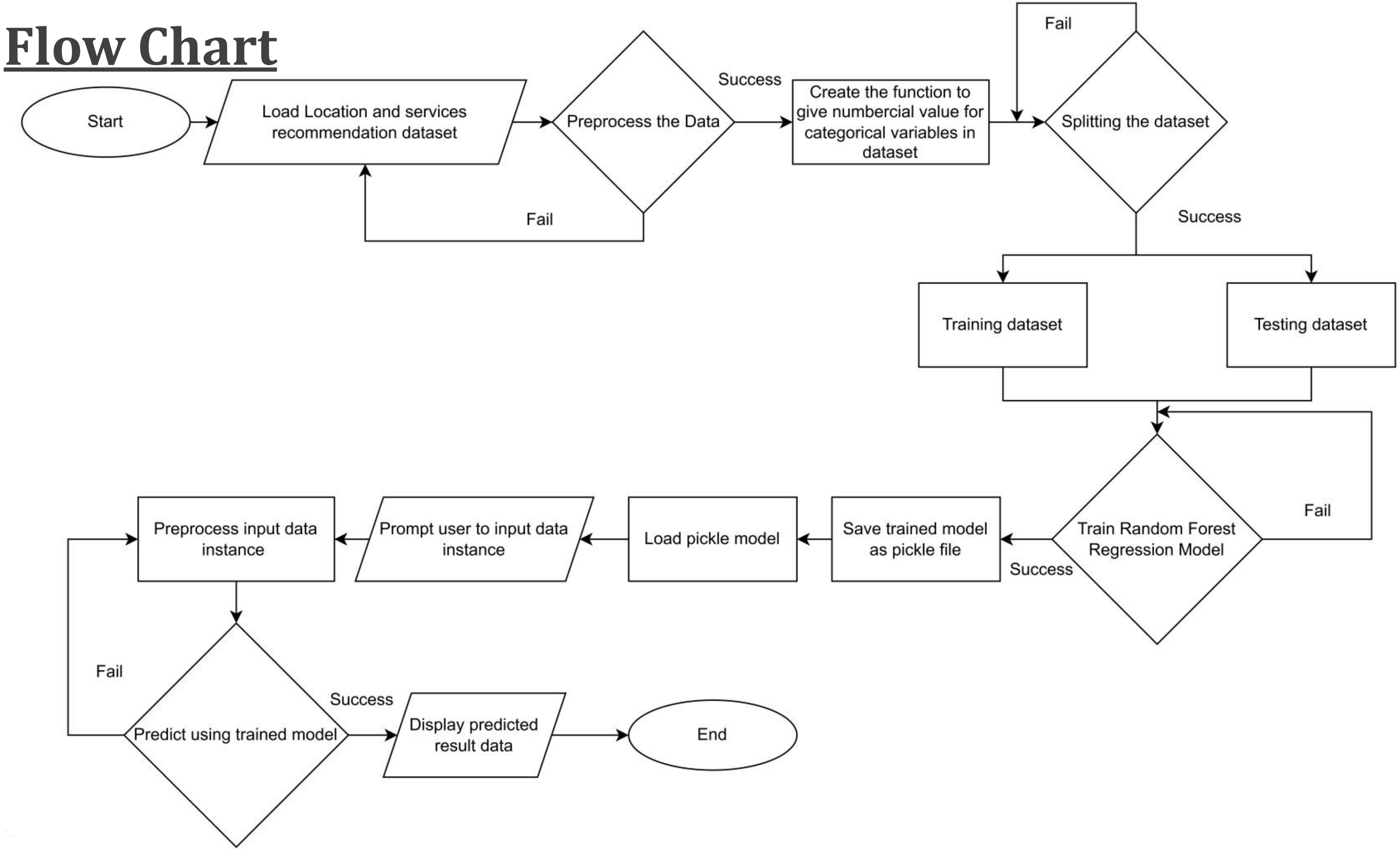
- According to my data set, I got high accuracy from the Random Forest Regressor algorithm, so I used Random Forest algorithm.

- Personalized recommendations are based on data collected from previous travelers' preferences and behaviors, making them more accurate and effective.

Architecture Diagram



Flow Chart


Start
Load Location and services recommendation dataset
Preprocess the Data
Fail
Success
Create the function to give numbercial value for categorical variables in dataset
Fail
Splitting the dataset
Success
Training dataset
Testing dataset
Train Random Forest Regression Model
Fail
Success
Save trained model as pickle file
Load pickle model
Prompt user to input data instance
Preprocess input data instance
Predict using trained model
Fail
Success
Display predicted result data
End

Technologies

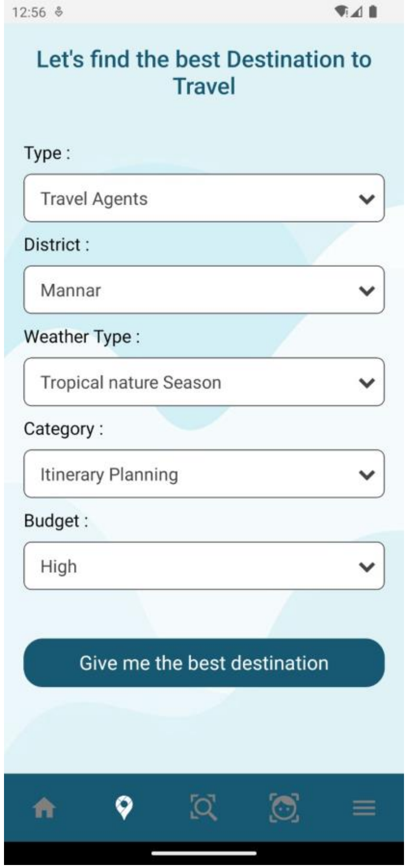
- Python
- Fire Base
- TensorFlow
- Flask
- React Native
- Google Map API

DATA COLLECTION

TASK TO BE DONE

- The front end and the back end of the app need to be developed.
- Integration of Systems
- System Integration
- The model needs to be improved more and implemented.

Results and Achievements



12:56

Let's find the best Destination to Travel

Type : Travel Agents

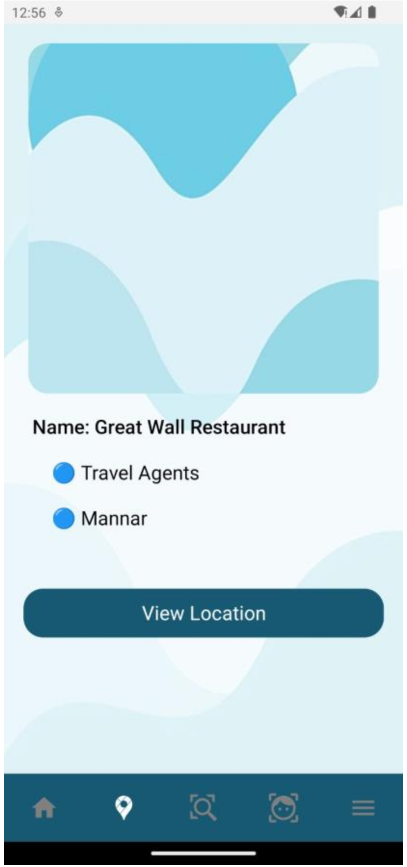
District : Mannar

Weather Type : Tropical nature Season

Category : Itinerary Planning

Budget : High

Give me the best destination



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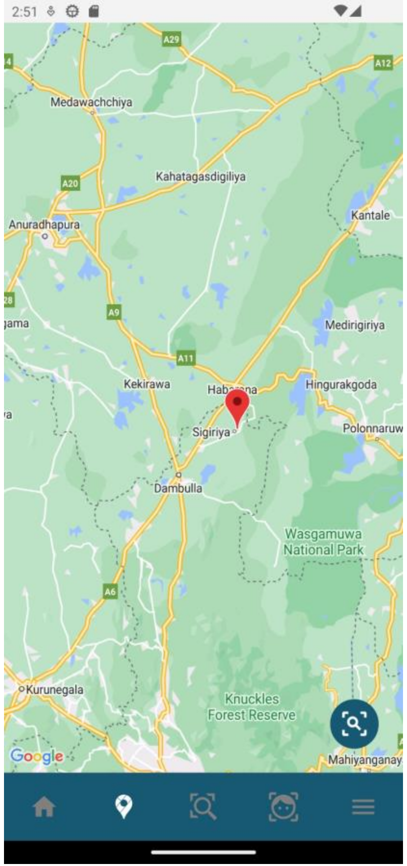
Name: Great Wall Restaurant

- Travel Agents
- Mannar

View Location

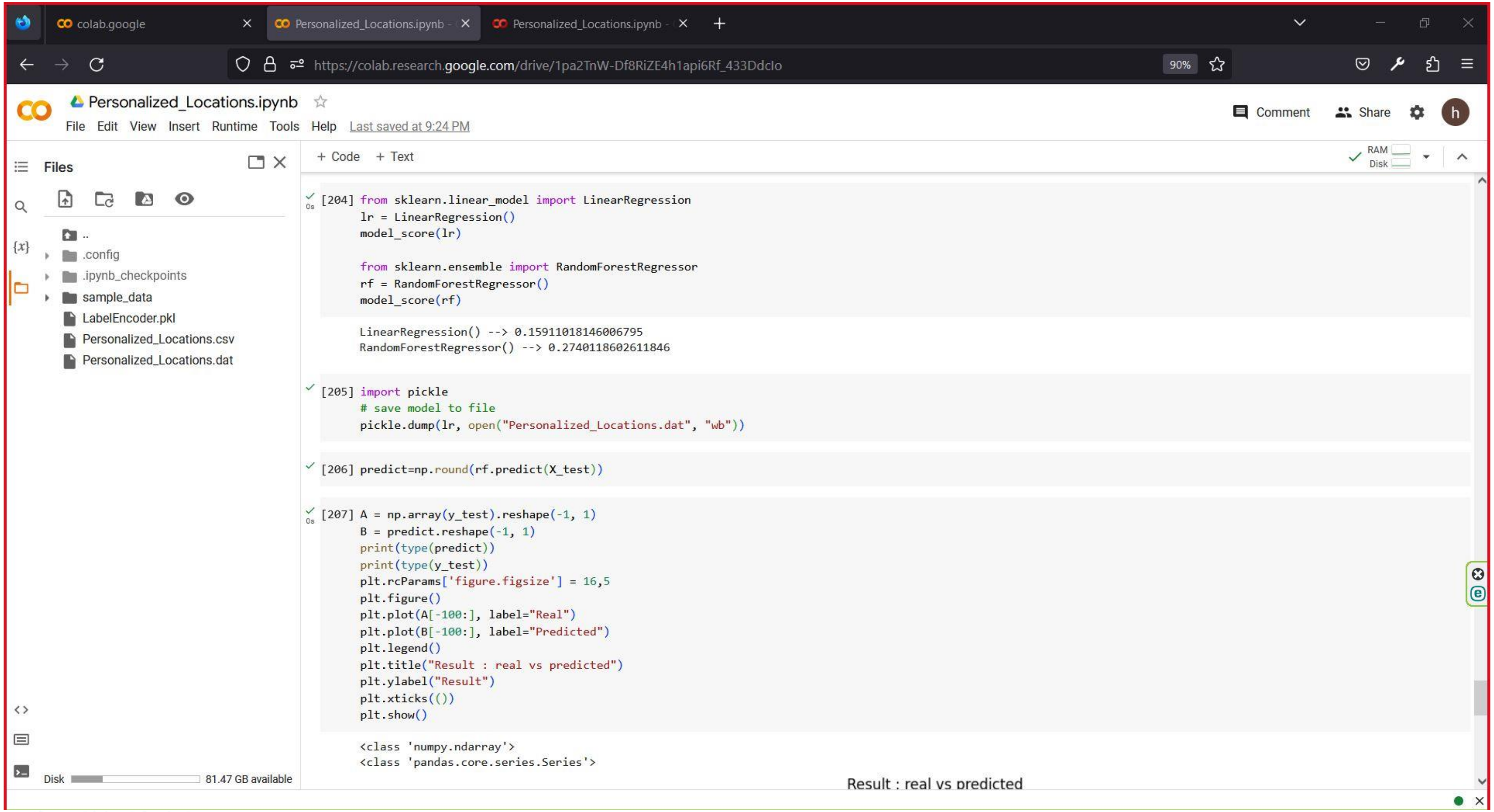
12:56

Finding the Best Destination



2:51

Results and Achievements



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sample_data
LabelEncoder.pkl
Personalized_Locations.csv
Personalized_Locations.dat
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```
[204] from sklearn.linear_model import LinearRegression
      lr = LinearRegression()
      model_score(lr)

      from sklearn.ensemble import RandomForestRegressor
      rf = RandomForestRegressor()
      model_score(rf)

      LinearRegression() --> 0.15911018146006795
      RandomForestRegressor() --> 0.2740118602611846
```

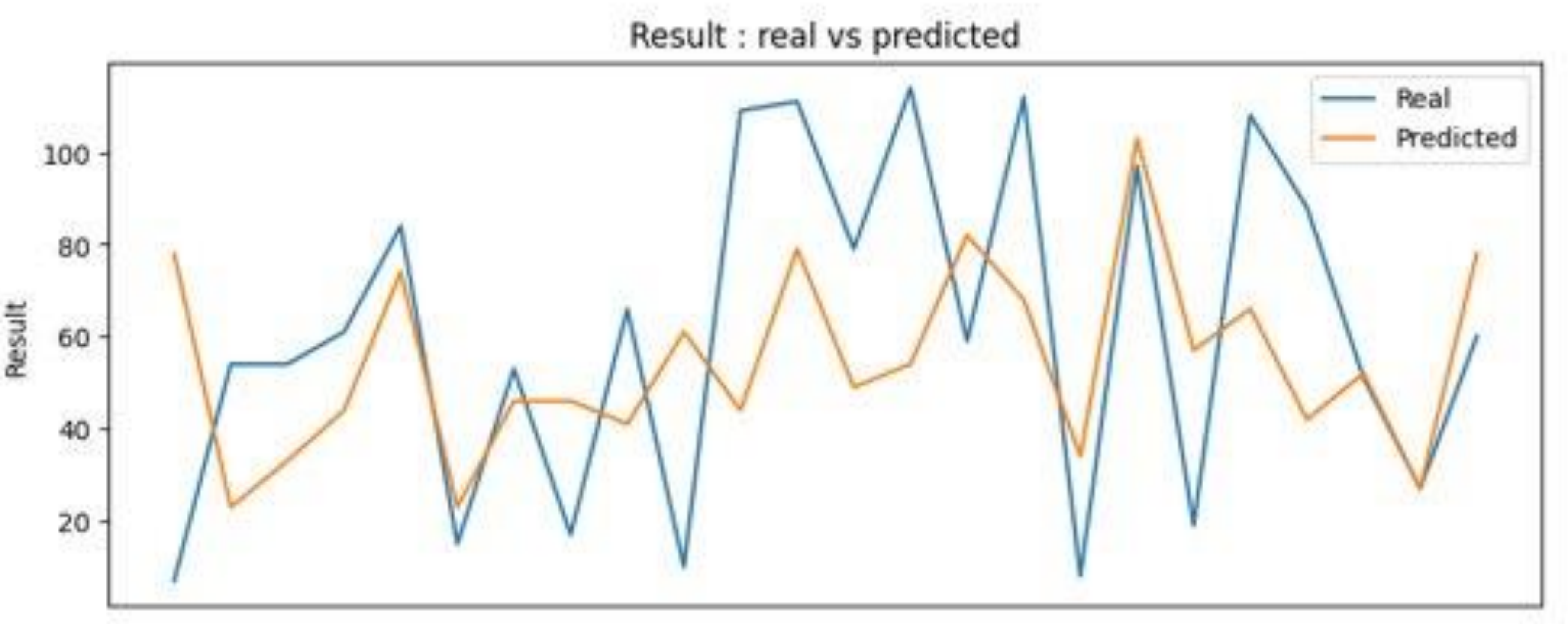
```
[205] import pickle
      # save model to file
      pickle.dump(lr, open("Personalized_Locations.dat", "wb"))
```

```
[206] predict=np.round(rf.predict(X_test))
```

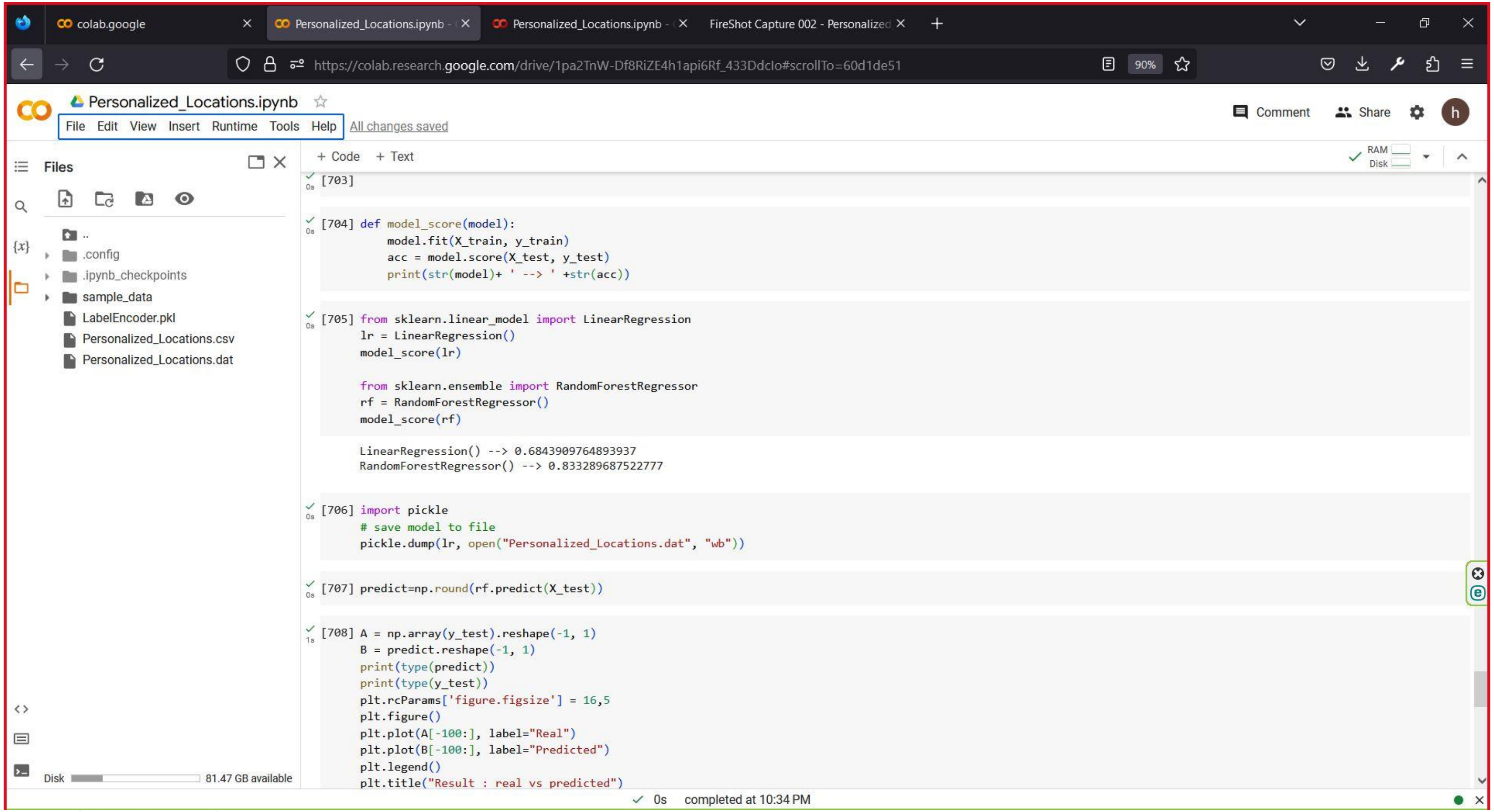
```
[207] A = np.array(y_test).reshape(-1, 1)
      B = predict.reshape(-1, 1)
      print(type(predict))
      print(type(y_test))
      plt.rcParams['figure.figsize'] = 16,5
      plt.figure()
      plt.plot(A[-100:], label="Real")
      plt.plot(B[-100:], label="Predicted")
      plt.legend()
      plt.title("Result : real vs predicted")
      plt.ylabel("Result")
      plt.xticks(())
      plt.show()

      <class 'numpy.ndarray'>
      <class 'pandas.core.series.Series'>
```

Result : real vs predicted

Results and Achievements



Results and Achievements



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Personalized_Locations.ipynb
Personalized_Locations.ipynb
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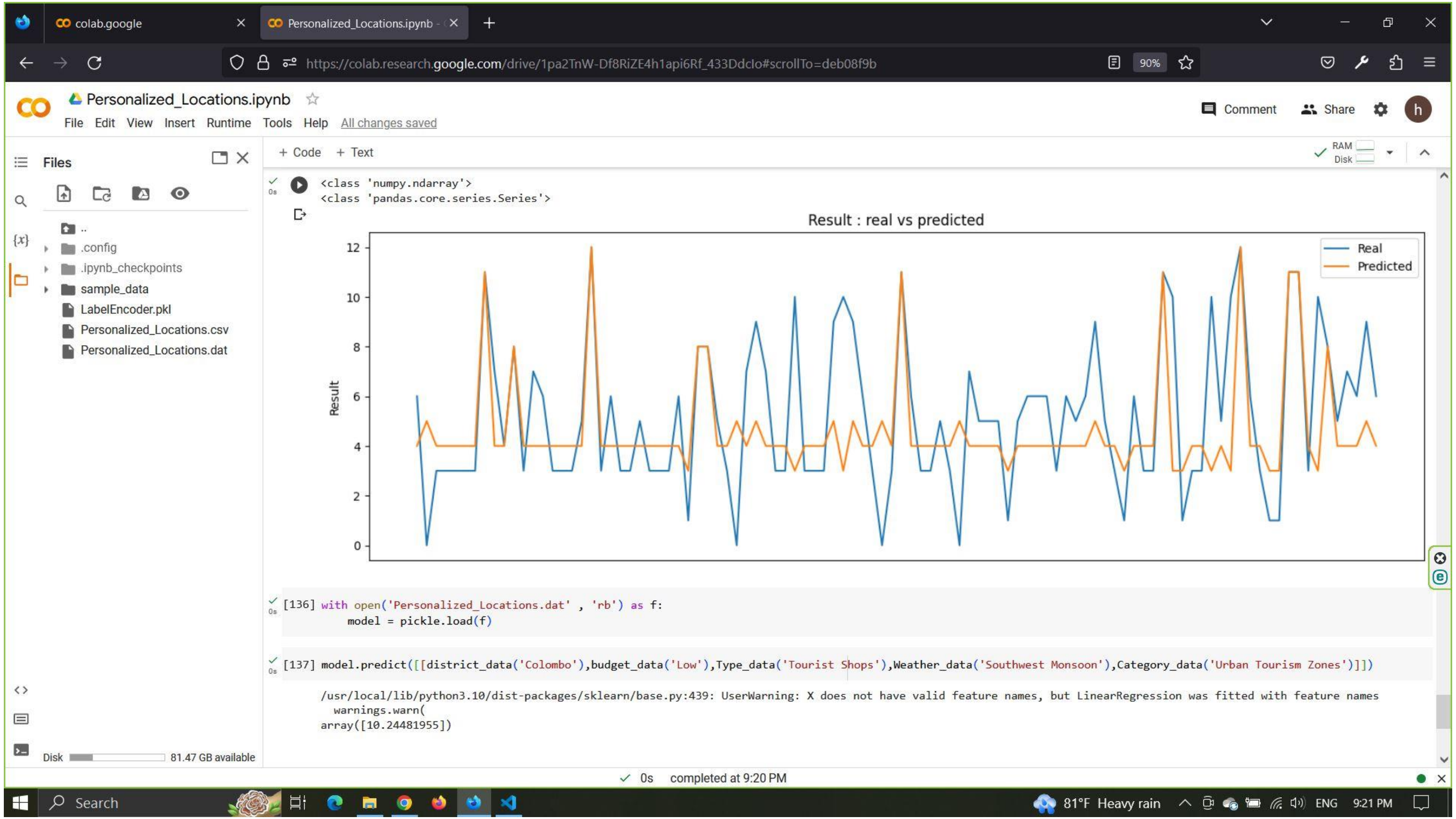
```
[703]

[704] def model_score(model):
          model.fit(X_train, y_train)
          acc = model.score(X_test, y_test)
          print(str(model)+ ' --> ' +str(acc))

[705] from sklearn.linear_model import LinearRegression
      lr = LinearRegression()
      model_score(lr)

      from sklearn.ensemble import RandomForestRegressor
      rf = RandomForestRegressor()
      model_score(rf)

      LinearRegression() --> 0.6843909764893937
      RandomForestRegressor() --> 0.833289687522777

[706] import pickle
      # save model to file
      pickle.dump(lr, open("Personalized_Locations.dat", "wb"))

[707] predict=np.round(rf.predict(X_test))

[708] A = np.array(y_test).reshape(-1, 1)
      B = predict.reshape(-1, 1)
      print(type(predict))
      print(type(y_test))
      plt.rcParams['figure.figsize'] = 16,5
      plt.figure()
      plt.plot(A[-100:], label="Real")
      plt.plot(B[-100:], label="Predicted")
      plt.legend()
      plt.title("Result : real vs predicted")
```

Results and Achievements



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LabelEncoder.pkl
Personalized_Locations.csv
Personalized_Locations.dat
Disk 81.47 GB available
Result : real vs predicted
Result
0
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12
Real
Predicted
Search
81°F Heavy rain
ENG
9:21 PM

```
<class 'numpy.ndarray'>
<class 'pandas.core.series.Series'>
```

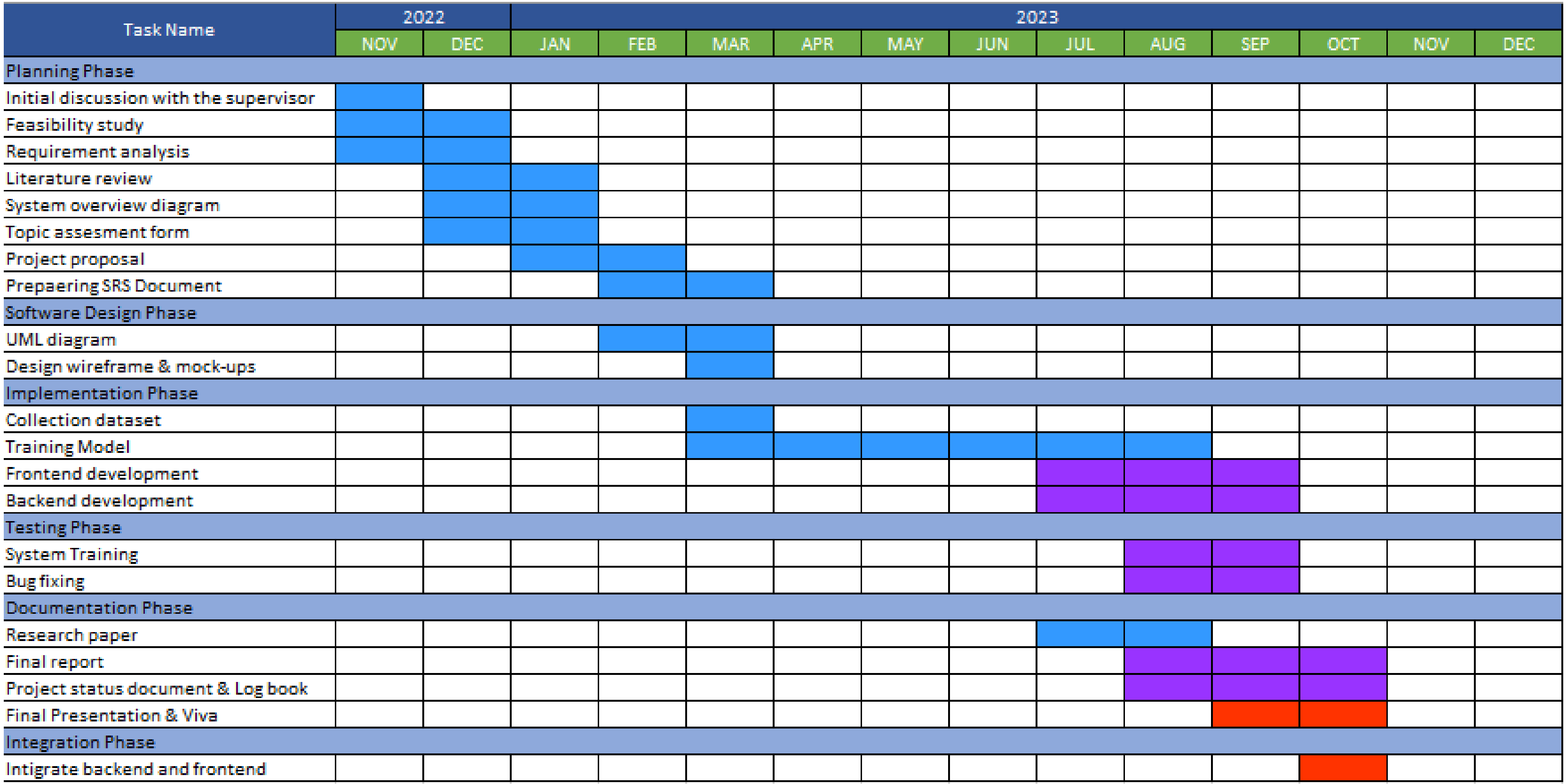
```
[136] with open('Personalized_Locations.dat' , 'rb') as f:
          model = pickle.load(f)
```

```
[137] model.predict([[district_data('Colombo'),budget_data('Low'),Type_data('Tourist Shops'),Weather_data('Southwest Monsoon'),Category_data('Urban Tourism Zones')]])
```

```
/usr/local/lib/python3.10/dist-packages/sklearn/base.py:439: UserWarning: X does not have valid feature names, but LinearRegression was fitted with feature names
  warnings.warn(
array([10.24481955])
```

✓ 0s completed at 9:20 PM

Gantt Chart



Task Name	2022		2023											
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Planning Phase														
Initial discussion with the supervisor	🟦													
Feasibility study	🟦	🟦												
Requirement analysis	🟦	🟦												
Literature review		🟦	🟦											
System overview diagram		🟦	🟦											
Topic assesment form		🟦	🟦											
Project proposal			🟦	🟦										
Prepaering SRS Document				🟦	🟦									
Software Design Phase														
UML diagram				🟦	🟦									
Design wireframe & mock-ups					🟦									
Implementation Phase														
Collection dataset					🟦									
Training Model					🟦	🟦	🟦	🟦	🟦	🟦				
Frontend development									🟪	🟪	🟪			
Backend development									🟪	🟪	🟪			
Testing Phase														
System Training										🟪	🟪			
Bug fixing										🟪	🟪			
Documentation Phase														
Research paper									🟦	🟦				
Final report										🟪	🟪	🟪		
Project status document & Log book										🟪	🟪	🟪		
Final Presentation & Viva											🟥	🟥		
Integration Phase														
Intigrate backend and frontend												🟥		

References

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IT20147846 | Thennakoon S.U.

B.Sc.(Hons) in Information Technology Specializing in Information Technology

Developing a system that analyze the emotional state of the user and suggest personalized activities according to their emotional state.

Background

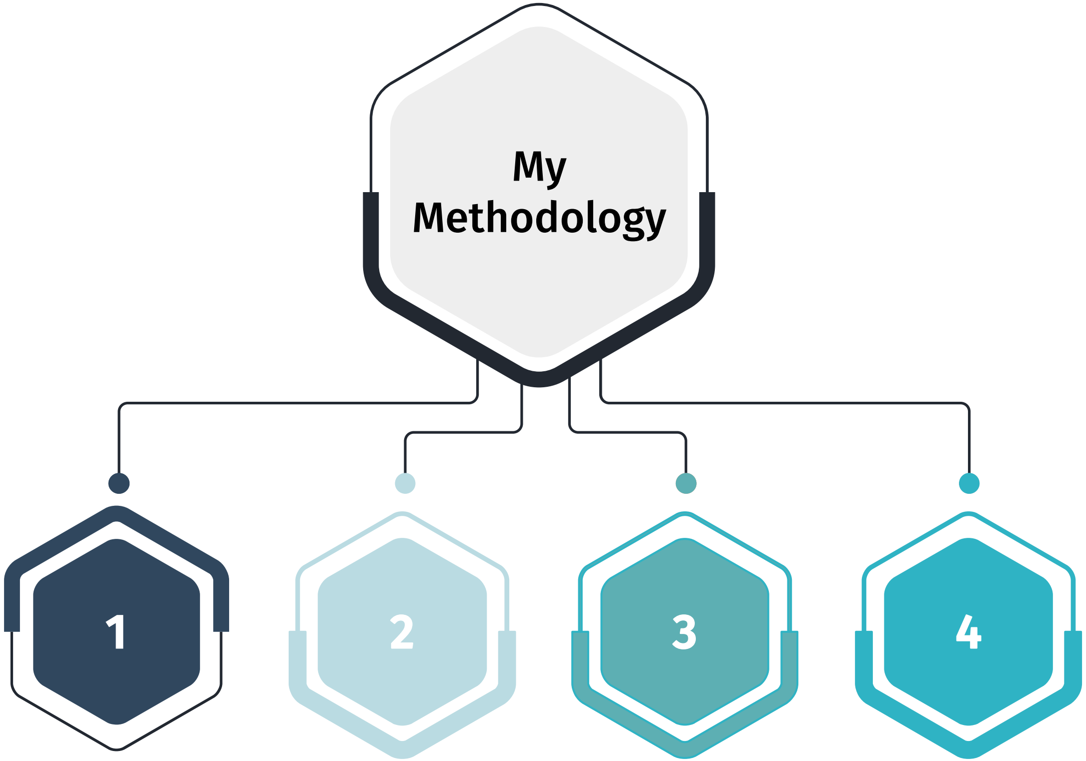
- Tourists in today's tourist business desire customized and unique experiences.
- Generic travel advice is no longer enough to suit the changing needs of tourists.
- According to tourism and technology research, personalized recommendations can significantly improve tourist satisfaction.

Research Question

- Travel recommendations are often based on a generic set of preferences rather than individual emotional states.
- Traditional surveys or feedback mechanisms may not capture the real-time emotional state of the user.
- Users may have different emotional states during different stages of their travel experience.

Specifics and Objectives

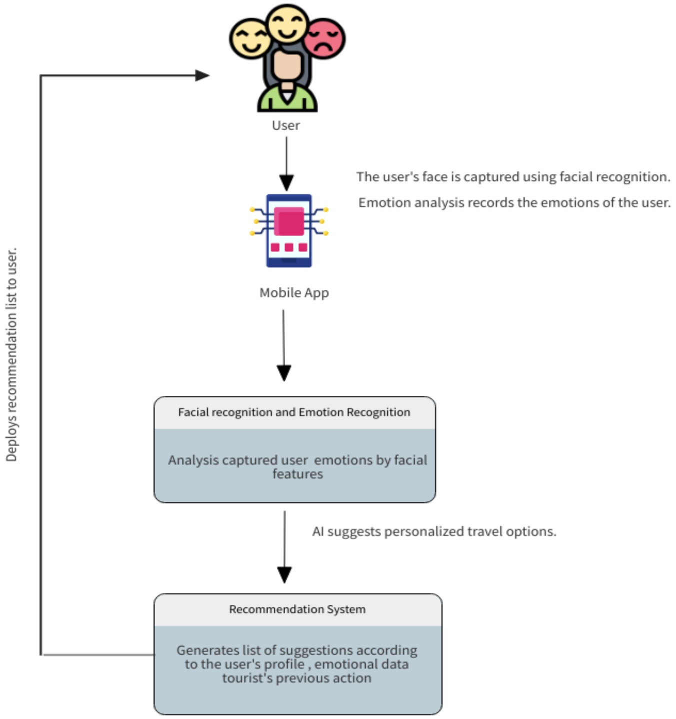
- Accurately identify the emotions of tourists through facial recognition technology and suggest activities and tips based on the emotional state of the user.
- Offer a range of travel options that cater to different emotional states.



My Methodology

1. Architecture Diagram
2. Algorithms behind the implementation
3. Data collection and Preprocessing
4. Model Training

System Architecture Diagram



User

The user's face is captured using facial recognition.

Emotion analysis records the emotions of the user.

Mobile App

Facial recognition and Emotion Recognition

Analysis captured user emotions by facial features

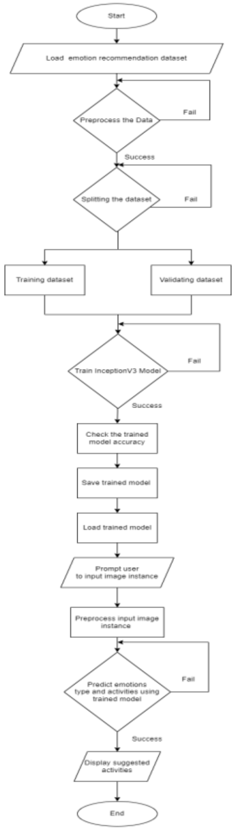
AI suggests personalized travel options.

Recommendation System

Generates list of suggestions according to the user's profile , emotional data tourist's previous action

Deploys recommendation list to user.

Flowchart



Start

Load emotion recommendation dataset

Preprocess the Data

Fail

Success

Splitting the dataset

Fail

Training dataset

Validating dataset

Train InceptionV3 Model

Fail

Success

Check the trained model accuracy

Save trained model

Load trained model

Prompt user to input image instance

Preprocess input image instance

Predict emotions type and activities using trained model

Fail

Success

Display suggested activities

End

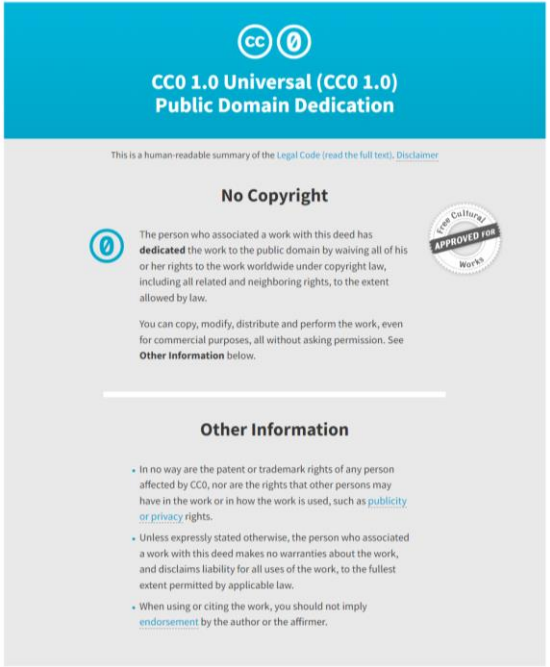
Algorithms behind the implementation

- The code mounts Google Drive to access a dataset containing images of facial expressions representing different emotions.
- It loads the data using TensorFlow's image_dataset_from_directory function.
- Data preprocessing will be performed using an ImageDataGenerator.
- InceptionV3 is used for feature extraction, followed by custom layers for regularization and classification.
- The model is compiled with Adam optimizer, categorical cross-entropy loss, and accuracy metric.
- The model is trained on the training dataset over specified epochs, and training history is recorded.

Data collection and Preprocessing

- Google Drive is used to load a dataset containing facial expression images.
- Data preprocessing will be happened using ImageDataGenerator which applied for rescaling, rotation, shifting, shearing, zooming, flipping, and data splitting.
- Batch normalization will be applied to stabilize and accelerate training by normalizing activations.
- Data is split into training and validation subsets using the validation_split argument.
- InceptionV3-specific preprocessing steps are handled internally by the model.

Data collection



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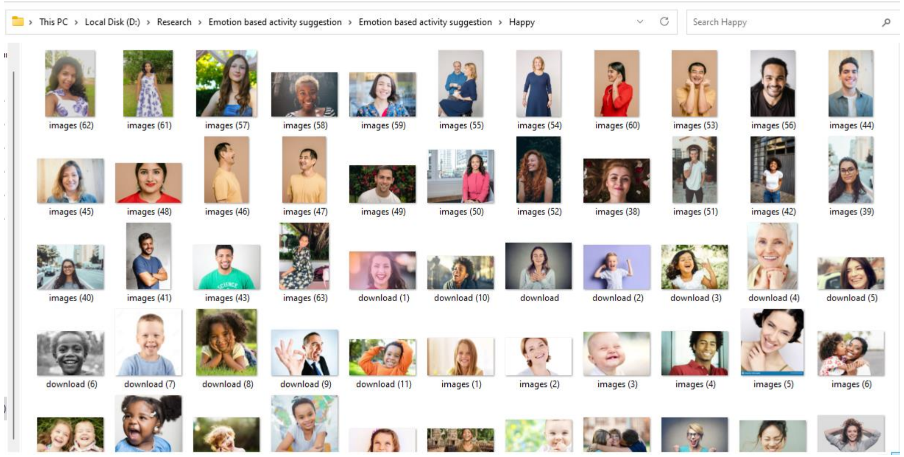

This PC › Local Disk (D:) › Research › Emotion based activity suggestion › Emotion based activity suggestion › Happy
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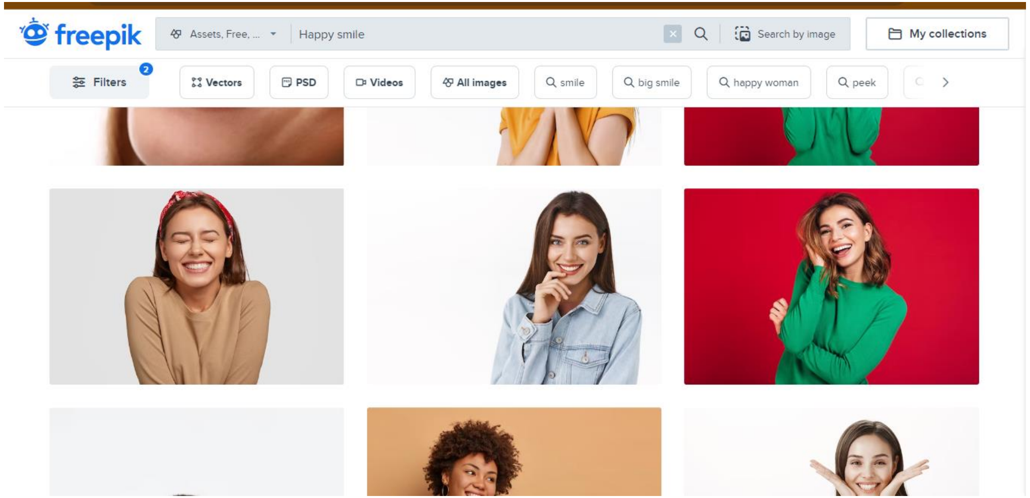
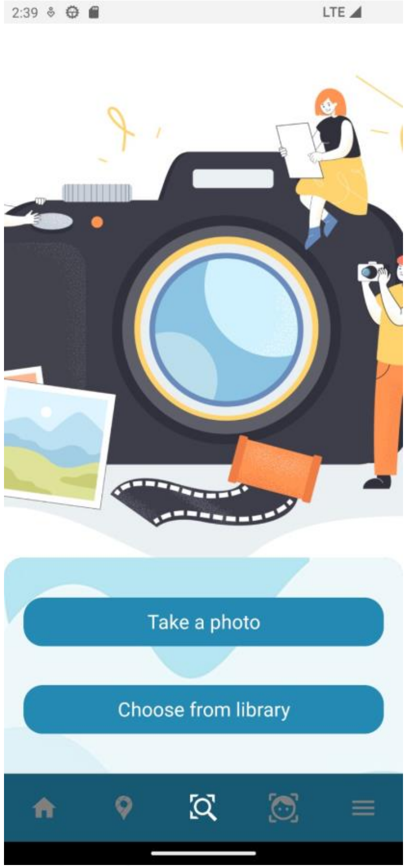
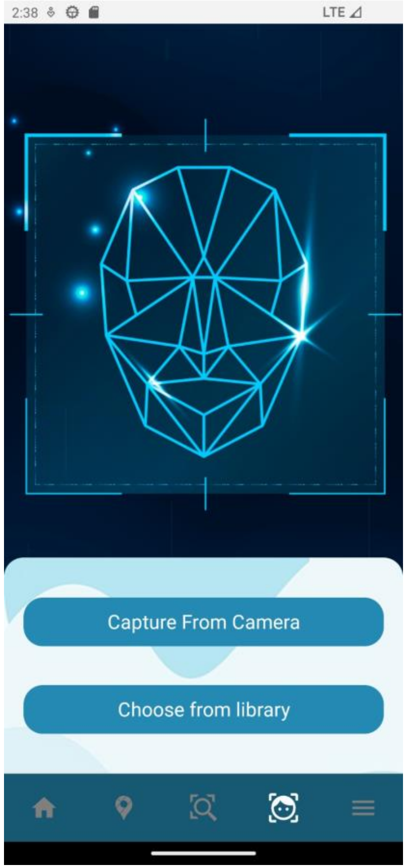


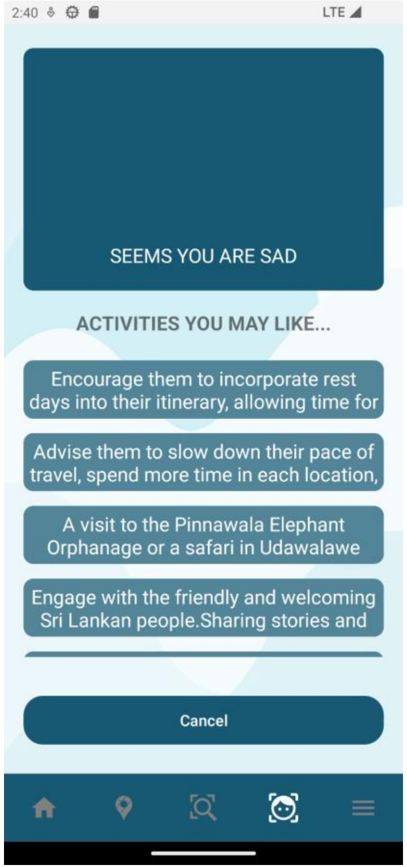
Model Training

- The model is trained on the training dataset and validated on the validation dataset.
- Training occurs over a specified number of epochs.
- The training history, including loss and accuracy, is recorded.
- The code evaluates the model's performance on both the training and validation datasets.
- The trained model is saved to a file for future use.
- The code defines a predict_image function to make predictions on new images using the loaded model.

Results and Achivements







SEEMS YOU ARE SAD

ACTIVITIES YOU MAY LIKE...

Encourage them to incorporate rest days into their itinerary, allowing time for

Advise them to slow down their pace of travel, spend more time in each location,

A visit to the Pinnawala Elephant Orphanage or a safari in Udawalawe

Engage with the friendly and welcoming Sri Lankan people.Sharing stories and

Cancel

Gantt Chart

Task Name	2022		2023											
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Planning Phase														
Initial discussion with the supervisor	🟦													
Feasibility study	🟦	🟦												
Requirement analysis	🟦	🟦												
Literature review		🟦	🟦											
System overview diagram		🟦	🟦											
Topic assesment form		🟦	🟦											
Project proposal			🟦	🟦										
Prepaering SRS Document				🟦	🟦									
Software Design Phase														
UML diagram				🟦	🟦									
Design wireframe & mock-ups					🟦									
Implementation Phase														
Collection dataset					🟦									
Training Model					🟦	🟦	🟦	🟦	🟦	🟦				
Frontend development									🟪	🟪	🟪			
Backend development									🟪	🟪	🟪			
Testing Phase														
System Training										🟪	🟪			
Bug fixing										🟪	🟪			
Documentation Phase														
Research paper									🟦	🟦				
Final report										🟪	🟪	🟪		
Project status document & Log book										🟪	🟪	🟪		
Final Presentation & Viva											🟥	🟥		
Integration Phase														
Intigrate backend and frontend												🟥		

References

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