De La Salle University- Manila
Gokongwei College of Engineering

PROLOGI
Programming Logic and Design

Project Proposal

<TransitMode>

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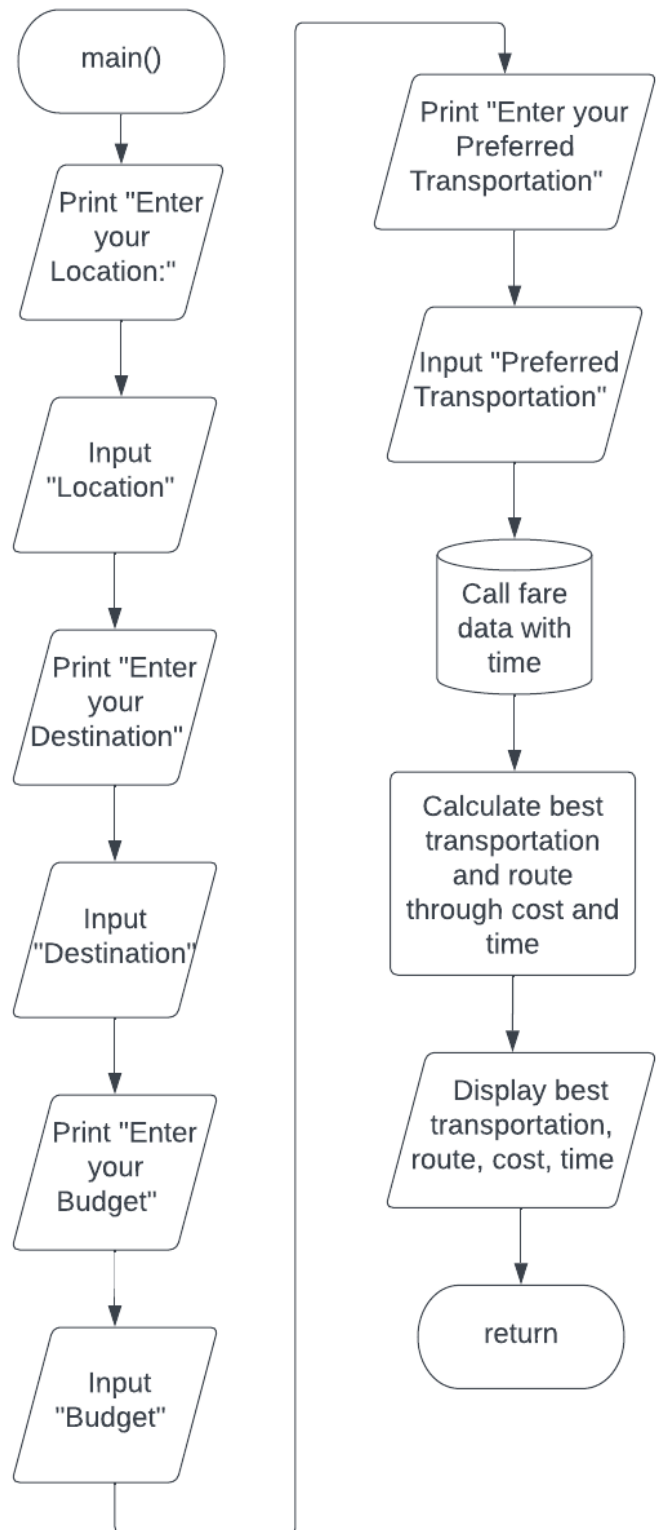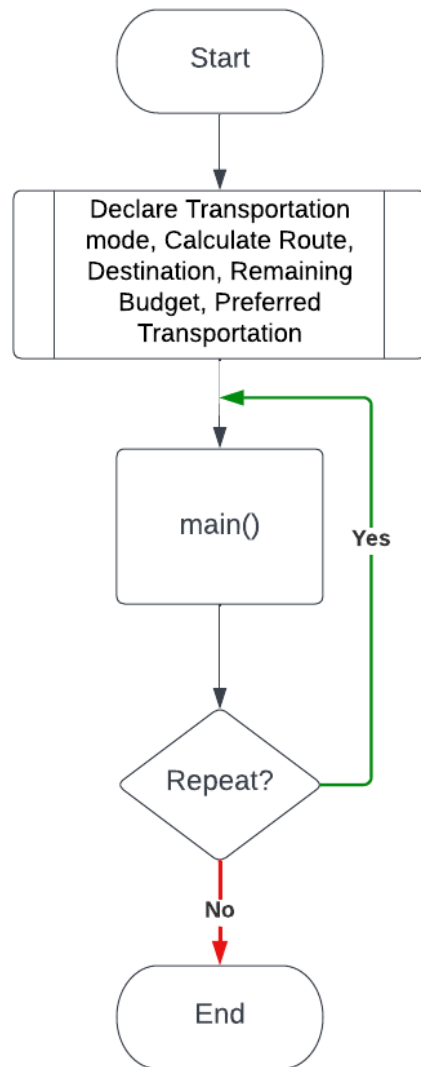<Juan Paolo L. Sarmiento>

Project Description

TransitMode is a program that uses real-time transportation data and machine learning algorithms to suggest the most efficient and cost-effective modes of public transportation for your desired destination. With just a few clicks, you can enter your destination, remaining budget, and preferred mode of transportation, and TransitMode will provide you with the best available routes and transportation options. Whether you're traveling by bus, train, subway, or any other form of public transportation, TransitMode will take into account the time of day, traffic conditions(unsure), and fare prices to help you find the most convenient and affordable route. The program also offers a range of features, including route customization and a user-friendly interface that makes it easy to plan your commute. With TransitMode, you can save time and money while reducing your carbon footprint by choosing the most efficient and environmentally-friendly mode of transportation.

The main way this is achieved is similar to waze and grab, where the program has a database on certain transportation modes and the prices often given for each individual mode of transportation. Like grab having certain fares per km or jeepneys and buses with certain fares of km. The other modes of transportation like trains will not necessarily be time efficient as the lines for the trains can often affect the time spent for transportation. Another restriction to this is that in first usage it may or may not know the paths as it requires more data on individual locations and such and we will be only be able to provide data based on own experiences as making a more complex dictionary would be more time consuming and the lack of resources and experience on multiple routes will hinder us in giving a good output.

IPO

Input	Process	Output
- Destination - Current Location - Route Preference - Preferred mode of Transportation	- The program uses data inputed about the user's current location to calculate the route from the user's current location to the destination location based on public transportation routes - Once the route has been given, they can have a choice of to repeat the input process or to stop all together, if yes then return back to the input process.	- Travel route through public transport - Transportation info (Traffic conditions) - ETA - Repeat (Yes or No)

Methodology

```
Start
  │
  ▼
┌─────────────────────────┐
│ Declare Transportation  │
│ mode, Calculate Route,  │
│ Destination, Remaining  │
│ Budget, Preferred       │
│ Transportation          │
└─────────────────────────┘
  │◄──────────────┐
  ▼               │ Yes
┌─────────┐       │
│ main()  │       │
└─────────┘       │
  │               │
  ▼               │
 ◇ Repeat? ───────┘
  │
  │ No
  ▼
 End
```

```
main()
  │
  ▼
Print "Enter your Location:"
  │
  ▼
Input "Location"
  │
  ▼
Print "Enter your Destination"
  │
  ▼
Input "Destination"
  │
  ▼
Print "Enter your Budget"
  │
  ▼
Input "Budget"
  │
  └──────────────►
```

```
  ┌──────────────►
  ▼
Print "Enter your Preferred Transportation"
  │
  ▼
Input "Preferred Transportation"
  │
  ▼
Call fare data with time
  │
  ▼
Calculate best transportation and route through cost and time
  │
  ▼
Display best transportation, route, cost, time
  │
  ▼
return
```

Process

1. User inputs their current location, budget, preferred transportation and desired destination
2. System calculates the best route based on selected preferences (e.g. shortest time, least transfers, avoid certain modes of transportation)
3. System displays route information to the user, depending on transportation (can include bus/train numbers, departure times, and stops along the way)
4. The user selects a route then given an overview of what they will do
5. If they wish to repeat the process then it will go back to the main functions which are the inputs

The program will use the concepts of python:

1. **Arithmetic operators -** This will be used for the calculations of cost and time
2. **Comparison Operator -** This will be used to compare the different methods of transportation with the desired transportation
3. **Dictionaries -** this will be used to store the data that will be used for the function
4. **If-else Statements -** this will be used to execute for the conditional repeating statement
5. **User Defined Functions** - the main backbone of the program will have a few different functions

Schedule of Activities

Task number	Planned action	Planned outcome	Time estimated	Target completion date	Actual Completion Date
1.	Project Proposal	Showing Project description with brainstormed idea	3 days	3/20/23	3/20/2023(submitted through different github link)
2.	Flowchart	Showing process of the program to make the coding easier	3 days	3/23/2023	4/5/2023
3.	Actual Coding	Coding the actual program with the database file	1 ½ week	4/1/2023	
4.	Debugging	Debugging the current program, fixing all the incorrect, typos or bugs	1 week	4/8/2023	
5.	Presentation	Presenting the program with its uses, how it works and show the results of the output	1 day	4/10/2023	

References

1. Terzidis, K. (2020, September 23). Top Python concepts for Data Science. FreeCodeCamp. https://www.freecodecamp.org/news/top-python-concepts-for-data-science/#strings-in-python
2. Statista. (2021). Philippines: minimum fare by type of public transport (in Philippine pesos) as of 2021. https://www.statista.com/statistics/1329307/philippines-minimum-fare-by-type-of-public-transport/
3. Philippine News Agency. (2021, January 1). Transport groups raise minimum jeepney fare in Metro Manila. https://www.pna.gov.ph/articles/1183909
4. Light Rail Manila Corporation. (n.d.). Fare matrix. https://lrmc.ph/our-business-featured/fare-matrix/

Note : The three sources will be used for the data regarding the fares of the philippines