# Project Overview

For this project, your aim is to **create a mobile recharge system** to streamline the process and improve the customer experience for a recharge store. With respect to the same, you are expected to write and explain the Python code to perform the tasks mentioned.

## Assessment Criteria

The assessment criteria for this project is as follows:

| **Criteria/Skills** | **Marks** | **Meets Expectations** | Does Not Meet Expectations |
| --- | --- | --- | --- |
| Storing the data | 5 | * The commands are syntactically correct * Appropriate data structures are used * The output of the code is correct in terms of the question and format | * There are syntax errors in the code * The data is not stored correctly in the appropriate data structures |
| Initialising data structures | 5 | * The commands are syntactically correct * Able to take the required inputs from the user * Appropriate checks are applied as mentioned | * There are syntax errors in the code * Cannot take the input from the user * Required checks are not applied |
| Initialising control structures | 30 | * The commands are syntactically correct * The functions have been correctly defined to perform the required tasks. * The final output is correct and answers the problem statement | * There are syntax errors in the code * Function definition is wrong/irrelevant * Incorrect/irrelevant output |
| Presentation | 10 | The learner was able to clearly explain the problem statements, the solution and the logic used | The learner was unable to clearly explain the problem statements, the solution and the logic used |
| **Overall** | 50 |  |  |

## Project Objectives

* Initialise data and control structures in Python
* Input the data accurately from the user
* Build the required functions for the problem statement
* Present the logic behind the solution

**Business Context**

A chain of mobile recharge stores needs a new order management system to improve the maintenance of customer orders and streamline the recharge process and to avoid errors and to ensure correct receipts are generated. The flow for this order management system is to be as follows:

1. Customer enters the name, number and circle
2. He then selects the type of recharge: Postpaid or Prepaid
3. For prepaid recharge, the customer chooses the recharge pack: Full recharge, Talktime only, Data packs. He then selects the required pack and payment method: Credit card, Debit card, UPI, Net Banking, Cash
4. For Postpaid customers, the customer enters the bill amount and then selects the payment method

The store manager is hoping to develop a system where the customer enters the details, the price is calculated and the customer pays. A receipt is generated after the recharge is complete for the customer as well as the store.

Below are the additional details that you will need for this project.

* **Circles:**

| **Circle ID** | **Circle** |
| --- | --- |
| AP | Andhra Pradesh & Telangana |
| AS | Assam |
| BR | Bihar & Jharkhand |
| DL | Delhi |
| GJ | Gujrat |
| HP | Himachal Pradesh |
| HR | Haryana |
| JK | Jammu and Kashmir |
| KL | Kerela and Lakshadweep |
| KA | Karnataka |
| KO | Kolkata |
| MH | Maharashtra and Goa |
| MP | Madhya Pradesh and Chhattisgarh |
| MU | Mumbai |
| NE | North East |
| OR | Orissa |
| PB | Punjab |
| RJ | Rajasthan |
| TN | Tamil Nadu |
| UE | UP (East) |
| UW | UP (West) |
| WB | West Bengal |
| GB | Ghaziabad and Noida |

* Prepaid packs:

|  |  |  |
| --- | --- | --- |
| Full recharge | Talktime Only | Data Packs |

* Full Recharge:

| **Price** | **Details** |
| --- | --- |
| Rs.250 | Unlimited calls(local/national) + 1.5GB data/day + 100 SMS/ day. Val = 28 days |
| Rs.400 | Unlimited calls(local/national) + 3 GB data/day + 100 SMS/ day. Val = 28 days |
| Rs.450 | Unlimited calls(local/national) + 1.5GB data/day + 100 SMS/ day. Val = 56 days |
| Rs.500 | Unlimited calls(local/national) + 1.5GB data/day + 100 SMS/ day. Val = 70 days |
| Rs.550 | Unlimited calls(local/national) + 1.5GB data/day + 100 SMS/ day. Val = 77days |

* Talktime only:

| **Price** | **Details** |
| --- | --- |
| Rs.100 | * Talktime: Rs. 82  Val = 28 days |
| Rs.50 | Talktime: Rs. 39  Val = 28 days |
| Rs.30 | Talktime: Rs. 22  Val = 28 days |
| Rs.20 | Talktime: Rs. 14  Val = 28 days |
| Rs.10 | Talktime: Rs. 7  Val = 28 days |

* Data Packs:

| **Price** | **Details** |
| --- | --- |
| Rs.1200 | 240 GB data Val= 240 days |
| Rs.600 | 72 GB data Val= 70 days |
| Rs.250 | 50 GB data Val= 28 days |
| Rs.100 | 12 GB data Val= 28 days |
| Rs.50 | 6 GB data Val= 28 days |

# Project Assessments and Submissions

## Assessment Areas

| **Criteria/Skills** | **Mode of Submission** | **Marks** |
| --- | --- | --- |
| Storing data | Write code in Jupyter Notebook | 5 |
| Initialising data structures | Write code in Jupyter Notebook | 5 |
| Initialising control structures | Write code in Jupyter Notebook | 30 |
| Presenting Analysis | Video submission | 10 |
| **Overall** | | 50 |

## Questions

***Please note:*** For each of tasks 1 to 4, along with the code, you need to add comments to the code blocks as well. Your comments should be comprehensive in terms of the task being performed and the logic being followed in that code block. ***20% of the marks*** for each of these tasks are reserved for the comments.

**Task 1: Store the data [5 marks]**

Store the details of different recharge packs and circles (as given in the tables in the previous segment) in appropriate data structures.

**Task 2: Input the details [5 marks]**

* The program should ask for the customer’s name, number and circle ID.
* The number should be a valid phone number and circle id should be valid according to the given table

**Task 3: Selecting packs and generate bill [20 marks]**

* For each recharge, the recharge type should be taken from the customer. (The only valid recharge types are prepaid and postpaid)
* For prepaid recharges:
  + The customer chooses the recharge pack: Full recharge, Talktime only, Data packs.
  + He then selects the required packages for the available packs. (Only the packs given in the tables are allowed)
  + The payment method should be entered by the customer. (The only valid recharge types are Credit card, Debit card, UPI, Net Banking, Cash.)
* For postpaid recharges:
  + The customer should be able to enter the bill amount.
  + Then the payment method should be selected. (The only valid recharge types are Credit card, Debit card, UPI, Net Banking, Cash)
* The program should be able to handle invalid entries inputted (such as incorrect recharge type, or invalid payment methods)
* The program should calculate the bill for each recharge as (Cost + GST of 18%)

**Task 4: Receipt generation [10 marks]**

* The program should generate a receipt at the end of all complete transaction, showing the customer and recharge details.

**Task 5: Presenting solution [10 marks]**

As the final part of the project, make a video presentation. Your video submission must contain a walkthrough of the entire Jupyter Notebook, explaining the logic behind your code. The video has to be of 5-7 minutes.

**Guidelines for Submission:**

* The comments added to your Jupyter Notebook must be clear and concise.
* You must use standard Python data structures, not Pandas, to store the prices of the individual items.
* Use a screen recording software for the video submission. Some softwares that can be used are[OBS Studio](https://obsproject.com/) and [Nimbus Screen Recorder Plug-in](https://chrome.google.com/webstore/detail/nimbus-screenshot-screen/bpconcjcammlapcogcnnelfmaeghhagj?hl=en).
* You will be required to submit two files **-** the Jupyter Notebook (.ipynb) for Q1, 2, 3, 4 and a video file for Q5. Zip the files and upload the zipped file as your submission. The**file size limit for platform upload is 50 MB**. In case, you are facing issues with file size for video recording, please compress your videos before upload. You may use tools such as [https://www.ps2pdf.com/compress-mp4](https://slack-redir.net/link?url=https%3A%2F%2Fwww.ps2pdf.com%2Fcompress-mp4).