

Console parking payment system

Requirements

A car parking system allows customers to select the number of hours to leave their car in the car park. Customer will be asked to choose options to **park** (in) or **pickup** (out) or **history**.

- With **park** option:
 - Customer will need to input:
 - The **arrival time**: The time to start parking. For ex: 2020-06-18 18:30.
 - The **car identity**: The identity of the car in a valid format like this 59C-12345, 01E-00001.
 - The **frequent parking number**(*optional*): This number consists of 4 digits and a check digit that is calculated using **modulo 11 check digit calculation**.(Ex: 12343 is a valid frequent parking number)
 - System will collect the information and store them in file(s), return to the *option selection*.
- With **pickup** option:
 - The customer will need to input the **car identity**.
 - System will calculate and display the parking price, round up to **2-decimal format** (Ex: 50.46).
 - If no valid identity found, then system will raise the error.
 - Customer will pay the fee by input a payment amount, it needs **to be great or equal** the fee.
 - The exceed amount will be kept for next payment (stored in file(s)).
- With **history** option:
 - The customer will need to input the **car identity**.
 - The system will export a file with name **<car_identity>.txt**:
 - Total payments.
 - Available credits (remaining credits when customer over pay their bills).
 - Parked dates in format **parked datetime - stay time**.
 - Example file output:

```
Total payment: 154.46
Available credits: 0.00
Parked Dates:
2021-06-18 18:30 - 10:30
2021-06-19 8:30 - 02:45
```

- The price of parking regulation is displayed in the bellow table:

Day of week	Arrival Time					
	From 08:00 - 16:59		From 17:00 - Midnight		Midnight - 07:59	
	Max stay in hours	Price per hour	Max stay in hours	Price per hour	Max stay in hours	Price (one time)
Sunday	8	2.00	Up to midnight	5.00	None	20.00
Monday	2	10.00	Up to midnight	5.00	None	20.00
Tuesday	2	10.00	Up to midnight	5.00	None	20.00
Wednesday	2	10.00	Up to midnight	5.00	None	20.00
Thursday	2	10.00	Up to midnight	5.00	None	20.00
Friday	2	10.00	Up to midnight	5.00	None	20.00
Saturday	4	3.00	Up to midnight	5.00	None	20.00

- The discount of 50% is available from 17:00 - Midnight, 10% for other arrival time.
- Any car parked exceed max stay hours will pay double price for each exceed hour it parked.

Your Tasks

Calculate the price for parking.

Apply all the concepts we have learned:

- Class and Function, OOP concepts.
- Exception Handling.
- Datetime module.
- Python common data structures (tuple, dictionary, string, decimal, ...)
- Using files to store the data we need.