

3255 Design Question Second Partial Exam

For this question you need to:

1. (0%) Carefully read the app description below

- **Parking Lot:** You have a parking lot that accepts cars only during certain times. The cars can be charged by minute, hour or days. You will charge different depending on whether the car is a compact, SUV or a Van. You need to keep track of the available spaces to admit a car. You need to show how many spaces are left. There are different spaces for compact cars, SUV and van. You need to allow multiple users. The users should be able to register and have an account that gives them the ability to reserve a parking spot for the next day.

2. (5%) Create a public GitHub repository for the code. Below the requirements for the GitHub repository

- Share the repository with me (jdposada). And...
- Create a README.md file and push it to the repository. And...
- Write the name of the selected app in the README.md file. And...
- The repository should only contain the answers for this partial exam. And...
- Paste the GitHub URL as the answer to this question.

3. (20%) Create the UML Class Diagram from the class you selected. Use PlantUML language to specify the diagram. Below the requirements for the UML:

- You should create a file with a .puml extension and add the file to the repository. And...
- You should explain this diagram in a section in the README.md file. And...
- The explanation should have a maximum of 100 words. And...
- You must use at least one inheritance and use an abstract class. And...
- You must use at least one Composition. And...
- All the requirements below should be satisfied for the answer to be considered. Even if just one of the requirements is not satisfied the score for the answer is 0.0.

4. (45%) Implement your UML diagram in Python. In this step, all the classes, attributes, and methods from the UML should be translated to Python. Below the requirements for the implementation:

- You should incorporate all the functionality defined in the UML. And...
- All the attributes and methods should have the proper typing using the Python typing module. And...
- All the attributes should be implemented using the @property decorator. And...
- All the abstract classes should be implemented using Python ABC class. And...
- You should comment on all classes, method and attributes using docstrings. The comments do not need to be long, but they need to be meaningful. And...
- You should validate at least two user inputs and use exceptions to handle them. And...
- The README.md file needs to explain how to run the code and what to expect. And...
- Every class should have its own module. And...
- You should create a Python package. And...
- The code should run without errors using the virtual environment from the class. And...
- You must commit and push all your code to the GitHub repository using either the command line or a local client(VsCode extension or GitHub Desktop App). And...
- All the requirements below should be satisfied for the answer to be considered. Even if just one of the requirements is not satisfied the score for the answer is 0.0