

# Assignment1

Md. Mohsin Uddin

East West University

*mmuddin@ewubd.edu*

June 24, 2019

# Assignment Part I

In this assignment, you will partially model the vehicles and employees of a transport manufacturing company using inheritance.

- Broadly, vehicles can be divided into three categories: air vehicle (plane, helicopter etc.), road vehicle (car, bus etc.) and water vehicle (ship, boat etc.). Each vehicle has some common characteristics such as name, weight, number of seats and number of kilometers travelled.
- The air vehicles have additional properties such as radius of their propellers. Suppose there are two types of air vehicles: small planes and big planes. Also suppose the small planes do not have (checked-in) luggage carrying capabilities whereas the big planes have- so for the big planes the capacity of luggage is an additional characteristics.

# Assignment Part II

- As for the road vehicles, all of them have wheels, so the number of wheels is their common characteristics. Suppose cars cannot carry luggage whereas buses and trucks can, so for the buses and trucks the capacity of luggage is an additional property. Suppose a difference bus and truck is that the engine of a truck is placed in the front whereas the engine for a bus is placed underneath its body; so for trucks a specific property is the length of front part.
- As for water vehicles, suppose there are two types of them: ship and boat - both of which have the size of propellers as a common property. The ships have radars, so the number of radars is an additional property for ships. Suppose the boats are not automatic implying they have to be rowed, so the number of available sticks to row is a special properties for boats.

# Assignment Part III

- In addition to the vehicles, the company has to manage its employees. Suppose there are two types of employees: part time and full time. Both have some common properties such as name and salary. Suppose full time employees have opportunities to have bonus salary whereas the part time employees do not have that. Also suppose the part time employees has flexibility in starting time of their work but the full time employees do not have that - so for the part time employees a specific information is the starting time.
- All the vehicles have an action which is increasing the number of kilometers travelled; so you need to write a function for each of them so that the function takes the number of kilometers newly travelled, and adds that to the existing number of kilometers travelled. Inside the function show the previous and new numbers.

# Assignment Part IV

- Model all the above-mentioned objects (vehicles and employees) using classes and inheritance, where appropriate. Write constructor in each of the classes with appropriate messages. A constructor should initialize all the data of a class.
- In the main function, create an object of each of the classes you have defined, and call each of the functions you have wrote. Thoroughly examine the output.