



Take Home — OOP Practise

Classes & UML Design

Objectives

To practice on UML

To practice on Class, its attributes and methods

Activities

The users will provide an input and output file from the command line. Write a program that reads commands from the input file and prints output to the output file.

The input file contains the basic commands.

The command list;

```
start_engine;  
stop_engine;  
absorb_fuel <quantity>;  
give_back_fuel <quantity>;  
  
add_fuel_tank <capacity>;  
list_fuel_tanks;  
remove_fuel_tank <tank_id>;  
connect_fuel_tank_to_engine <tank_id>;  
disconnect_fuel_tank_from_engine <tank_id>;  
  
open_valve <tank_id>;  
close_valve <tank_id>;  
  
break_fuel_tank <tank_id>;  
repair_fuel_tank <tank_id>;  
  
stop_simulation;
```

- The program must run until it takes a “stop_simulation;” command.
- There is only one engine. The engine’s attributes are;
 - fuel_per_second: double
 - status: boolean
- The engine has an internal tank to store fuel.
- There are several fuel tanks. Tank’s attributes are;
 - capacity: double
 - fuel_quantity: double



- broken: boolean
- The engine needs a minimum of one connected tank to start; otherwise, the engine can not start.
- Each tank has a valve to connect the tanks and the engine.

Task List;

1. Draw a UML diagram about the system.
2. Implement the class which will read the input file.
3. Implement other classes. The classes need to include possible attributes and methods.

Problem-Solving Tips

1. UML and source code has to match
2. Do not implement logic in Main. Do it in class, which is responsible.