NMK20703 LAB MODULE 1
OBJECT ORIENTED PROGRAMMING

GETTING STARTED WITH OBJECTS

FACULTY OF ELECTRONIC ENGINEERING TECHNOLOGY

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Learning Outcome:
After completing this lab module, students will be able to:

- Describe the attributes and methods of an object
- Differentiate between an object and an instance of an object.
- Use predefined methods in a program
- Write appropriate Java codes to manipulate standard input and output.

TASK 1:
Answer all questions.

1. Mark the statements below as TRUE or FALSE.
    a. A real world object is created in Java by using the keyword ***class*.**

    b. Using the keyword *static*, we imply that a method belongs to a class rather than an instance.

    c. A public instance variable means that only the object can manipulate its value.

    d. For one object or class, there can be many instances of the object.

    e. Classes are general implementation of an object. To use a class, you must declare instances of that class.

2. What is garbage collection?

3. Explain briefly with one example, the differences between an object and instance of an object.

4. Graphically represent a Vehicle class and three Vehicle objects named car1, car2, and car3.

5. Graphically represent a CD class with the following components.
   State

Album Name	*instance variable*
Artist	*instance variable*
Genre	*instance variable*
Total Playing Time	*instance variable*

   Behaviors

getAlbumName(), setAlbumName()	*instance methods*
getArtist(), setArtist()	*instance methods*
getGenre(), setGenre()	*instance methods*
getPlayingTime(), setPlayingTime()	*instance methods*

6. Graphically represent a client class with the following components:
   Data Members
   Name
   Address
   Phone
   Collection of reservations
   BillingInformation

   Methods
   Accessors and Mutators for name, address, BillingInformation, and collection of reservations
   Add reservation

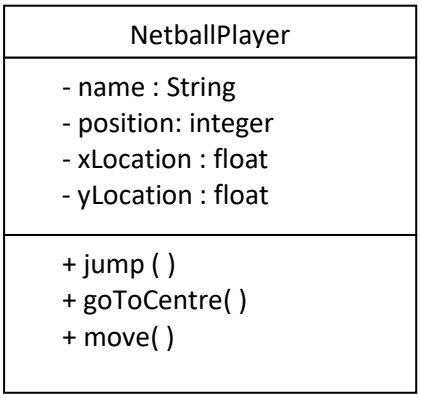
TASK 2:

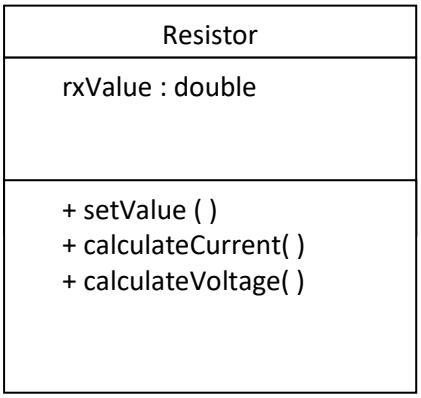
For each object below, list all its members: attributes and methods, along with their types of modifier. You may write the answers in the blank space on the right.

A.

Coordinate
-x : integer -y : integer
- getX( ) - getY( ) + displayCoordinate( ) + setX (int) + setY(int) + setToOrigin( ) + Coordinate( ) + Coordinate (int, int) + move ( )

Student
- name : String - ID : integer - status: integer - CGPA: float
+ Student (String, int) + getName( ) + getID( ) + getCGPA (float) + setName(String) + setCGPA( ) + graduate ( ) + active ( ) + defer ( )


NetballPlayer
- name : String
- position: integer
- xLocation : float
- yLocation : float
+ jump ( )
+ goToCentre( )
+ move( )


Resistor
rxValue : double
+ setValue ( )
+ calculateCurrent( )
+ calculateVoltage( )

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