

The following content to be added as Header of all java assignments

```
/*  
PC No:<PC No>  
Enrollment No: <Enrollment Number>  
Faculty Name: <I/c Faculty Name>  
Student Name : <Your Name>  
Roll_No: < Your Name >  
Class : <Class>  
Div : <Div>  
Date: <Assignment_Date>  
Assignment: <Assignment_No>  
Assignment Aim: <>  
Program Title: < >  
*/
```

**FYBScIT SEM 2
DSC-3 OBJECT ORIENTED PROGRAMMING
Practical Assignment**

AIM: OOP CONCEPT

(NOTE: CREATE CLASS AND OBJECT)

Level: Basic

1. Write a program with the class called CONVERT that reads a number in meters, converts it to feet, and displays the result.

Formula: feet = meter * 3.28084

2. Write a program with the class called TEST that prompts the user to enter a letter and check whether a letter is a vowel or consonant.

3. Write a java program with the class called TEST to find length of string and print second half of the string.

DSC-3 OBJECT ORIENTED PROGRAMMING

Practical Assignment 2

Date: 4/8/2022

**Aim: To learn the Class concept(Use class concept for all programs),
Array of objects**

Level : Basic

Q-1 Write a java program that prompts the user to enter a weight in pounds and height in inches and displays the BMI. Body Mass Index (BMI) is a measure of health on weight. It can be calculated by taking your weight in kilograms and dividing by the square of your height in meters.

Note:- 1 pound=.45359237 Kg and 1 inch=.0254 meters.

Level : Moderate

Q-2 Write a Java program to input student details (Name, Roll No, Marks of 4 different subjects). Calculate the total of all subjects, percentage and result as per given condition and print it in proper format.

****RESULT OF STUDENT****

| RollNo | Student | M1 | M2 | M3 | M4 | Total | Percentage | Result |
|--------|-------------|----|----|----|----|-------|------------|-----------|
| 1 | Priya Patel | 40 | 40 | 40 | 40 | 160 | _____ | Pass/Fail |

Level : Advanced

Q-3 Write a Java program to input Basic Salary amount of 10 employees and Additions & Deductions to it(in terms % or amount) and calculates Gross Salary & Net Salary and display final salary statement containing all detail.

Calculations:

Additions Deductions

DA – 40% of BS PT = Rs. 80

HRA – 15% of BS IT – 10% of GS

Traveling Exp. Rs. 200

Gross Salary = Basic Salary + DA + HRA + Traveling Exp.

Net Salary = (Gross Salary – PT) – IT

DSC-3 OBJECT ORIENTED PROGRAMMING

Practical Assignment 2

Aim: Constructors

Level :Basic

Q-1 Create a class “Student” that would contain enrollmentNo, name, and gender as data members. Create appropriate getter and setter methods(user defined functions) for the “Student” class and constructors to initialize the data members and display Student information.

Level :Moderate

Q-2 Write a java program to make constructor called Volume and overload it. Find volume of cube ($\text{var} \times \text{var} \times \text{var}$), volume of cylinder ($3.14 \times r^2 \times h$) and volume of rectangular box ($l \times b \times h$).

(aim :use constructor overloading)

Q-3 Write a java program which **overloads constructor** of the class **DEPOSIT**. The parameter (principal amount, period, rate of interest) values to these constructors are provided at run time. The user can provide input in one of the following forms: **(aim :use constructor overloading)**

1. Amount, period in integer form and interest in decimal form
2. Amount, period in double form and interest in integer form

Level: Advanced

Write a java program which contains **overloaded constructor named power () to raise a number m to a power n.**

- a. The power () function takes a **double value for m** and int value for n and returns the result correctly. Use a default value of 2 for n to make the function to calculate squares when this argument is omitted.
- b. The power () function takes **an int value for m** and int value for n and returns the result correctly. Use a default value of 2 for n to make the function to calculate squares when this argument is omitted.

Date : 30th-March-2022/6th April 2022

Practical Assignment:

Aim :- To learn and implement the concepts of Arrays and Object.

Basic:

1. Create an Array of 10 objects of class named Employee.
2. Calculate total salary of all employees by taking input of following values.

$$\text{Total Salary} = \text{Basic} + \text{DA} + \text{HRA} - (\text{TDS} + \text{PF})$$

Moderate:

3. Create class member object named designation for each employee and count total number of specific type of employees.
4. Calculate total income tax paid by the organization using field TDS.
5. Calculate ration of salaries for various type of designations.

Aim: Implementation of the following concepts:

- 1) Classes and objects
- 2) Data members and member functions access
- 3) Constructors

Details of class, data members, member functions:

| |
|------------------------|
| Class: Employee |
|------------------------|

Data members:

Name

Designation

Basic salary

Experience

DA

HRA

IT

GS

NS

Department

Member functions:

getData()

calc_DA()

calc_HRA()

calc_IT()

calc_GS()

calc_NS()

putData()

cal_Sal()

| Designations | B.S. (Basic salary) | O.D.A (% of Basic sal) | HRA(% of Basic sal) |
|---------------------|----------------------------|-------------------------------|----------------------------|
| Manager | 50,000 | 30 | 20 |
| Supervisor | 30,000 | 20 | 10 |
| Executive | 20,000 | 15 | 05 |

$$\text{Gross_salary} = \text{Basic_salary} + \text{DA} + \text{HRA}$$

$$\text{Net_salary} = \text{GS} - \text{IT}$$

$$\text{DA to be calculated as } (\text{ODA} + (\text{Experience} * 3))$$

IT to be calculated as:

30 %, if GS > 70000

20%, if $GS > 50000$

10%, if $GS > 30000$

0%, otherwise.

DSC-3 OBJECT ORIENTED PROGRAMMING

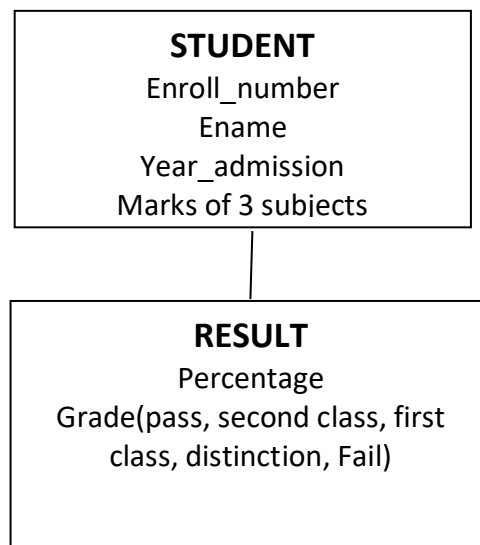
Practical Assignment

Aim: Inheritance

Level: Basic

Q-1 Write a java program which has base class **Student** and a derived class named **INTERNAL** which input marks of 3 subjects and calculate percentage and grade. Display Student result in proper format.

//Note: Input marks out of 70 (keep validations



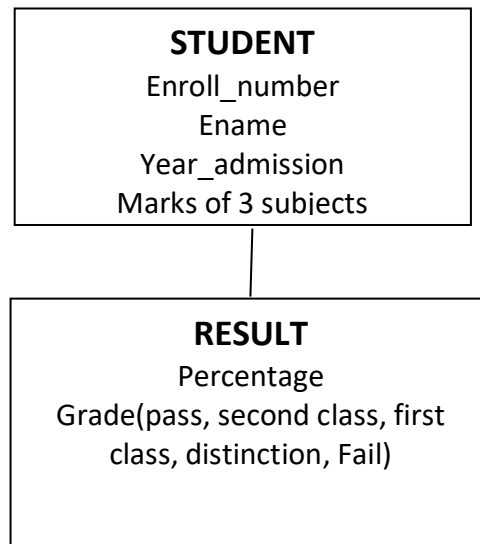
Grade is

- 1) Distinction if percentage is greater and equal to 70
- 2) First class if percentage is greater and equal to 60 and less than 70
- 3) Second class if percentage is greater and equal to 50 and less than 60
- 4) Pass class if percentage is greater and equal to 40 and less than 50
- 5) Fail if percentage less than 40

Level: Moderate

Q-1 Write a java program which has base class **Student** and a derived class named **INTERNAL** which input marks of 3 subjects and calculate percentage and grade. Display Student result in proper format.

//Note: Input marks out of 70 (keep validations



Grade is

- 1) Distinction if percentage is greater and equal to 70
- 2) First class if percentage is greater and equal to 60 and less than 70
- 3) Second class if percentage is greater and equal to 50 and less than 60
- 4) Pass class if percentage is greater and equal to 40 and less than 50
- 5) Fail if percentage less than 40