

# JA111 C2 Evaluation

Note

There are a total of 5 questions.

All the questions are compulsory.

Duration of the test is **3 hours**.

**Mode of Submission: Github Link**

Don't seek help from any person/resource during the test.

Marks Distribution is as follows:

Question	Marks
1	3
2	4
3	4
4	5
5	4

**Q1)** a) Why String is immutable in java and what is the difference between String and String Builder? And Write some of the methods of String class at least 5 with example.

b) What is the difference between equals method and == operator in java? And what will be the output of the following code snippets and giving proper explanation.

## Code snippet 1 >

```
String s1 = new String("abc");
String s2 = new String("abc");

System.out.println(s1.equals(s2));
```

## Code snippet 2 >

```
StringBuilder sb1 = new StringBuilder("abc");
StringBuilder sb2 = new StringBuilder("abc");

System.out.println(sb1.equals(sb2));
```

## Code snippet 3 >

```
String s1 = new String("abc");
String s2 = new String("abc");

System.out.println(s1==s2);
```

**Q2)** Create a Java Bean class Student with 3 private fields:

- rollNumber
- studentName
- marks

And should have the following members also:

- Zero-argument constructor
- Parameterized overloaded constructor with all 3 fields.
- public getter and setter method for the above 3 fields

2. Create the Main class with the main method and inside the main method do the following things:

- a. Ask the User about the number of students he wants to add. (use Scanner class to take the input).
- b. With the help of the Scanner class take the input for rollNumber, studentName, and marks for each student.
- c. With these inputs compose the required objects of the Student class by using the parameterized constructor.
- d. With the help of getter methods print all the details of the student from the above Student object.

Sample output =>

Enter Number of Students you want to enter

2

=====

Enter the Roll Number :

1

Enter the Name :

Sam

Enter the marks :

567

Student Detail 01

Student Roll Number:567.0

Student Name:Sam

Student Mark:567.0

=====

Enter the Roll Number :

2

Enter the Name :

Ram

Enter the marks :

669

Student Detail 11

Student Roll Number:669.0

Student Name:Ram

Student Mark:669.0

=====

**Q3)** Create a class Ticket with the following variables

int ticketid;

int price;

static int availableTickets;

Write the following method in the Ticket class:

public int calculateTicketCost(int noOfTickets) —this method should check the ticket availability, If the tickets are available, reduce the noOfTickets from availableTickets and calculate the total amount as noOfTickets\*price and return the total amount. If the tickets are not available, this method should return -1.

Write a main method in the Main class to test the application

### Sample input and output

Enter no of bookings: 2

Enter the available tickets: 25

Enter the ticketid: 123

Enter the price: 100

Enter the no of tickets: 5

Available tickets: 25

Total amount:500

Available ticket after booking:20

Enter the ticketid: 124

Enter the price: 100

Enter the no of tickets: 2

Available tickets: 20

Total amount:200

Available ticket after booking:18

Q4) Create a java bean class Laptop with the following members-

```
String color;  
String companyName;  
String name;  
String purpose;  
CPU cpu;  
GraphicCard graphicCard;  
displayDetails() : void
```

Here class Laptop Has-A relationship with GraphicCard and CPU.

Create a method displayDetails() which will print all the details of the laptop.

Create a java bean class CPU with the following fields-

```
String manufacturer;  
String processor;  
double clockSpeed;
```

Create a java bean class GraphicCard with the following fields-

```
String manufacturer;  
String capacity;  
String series;
```

Create a class Main with the following methods-

```
public static void main(String[] args)  
public static Laptop getLaptop(String laptopPurpose);
```

Implement this getLaptop method in such a manner that if the user passes “gaming” then it should return a laptop with gaming laptop specification and if the user passes “business” then it should return laptop with business laptop specification else return null.

**Note: You need to take input for laptoPurpose using Scanner Class and you need to set the specification according to the sample Output.**

```
public class Main{

    public static Laptop getLaptop(String laptopPurpose){
        // implement your own logic
    }

    public static void main(String[] args) {
        // TODO Auto-generated constructor stub

        Laptop gamingLaptop=getLaptop("gaming");//You need to take input Using Scanner Class
        gamingLaptop.displayDetails();

        Laptop bussinessLaptop=getLaptop("business");//You need to take input Using Scanner Class
        bussinessLaptop.displayDetails();

        Laptop laptop=getLaptop("Entertainment");//You need to take input Using Scanner Class

    }

}
```

**Sample Output-**  
Laptop Details

=====

Laptop Name => Acer  
Company name => Radeon  
Laptop Color => Black  
Laptop Purpose => gaming  
Cpu's Manufacturer => Radeon  
Cpu's Processor => Ryzen 9 5800H  
Cpu's ClockSpeed => 3200.0  
Graphic card's Manufacturer =>Radeon  
Graphic card's Series =>RTX 3050 Ti  
Graphic card's Capacity =>16GB

=====

Laptop Details

=====

Laptop Name => Aero 13  
Company name => HP  
Laptop Color => Rose Gold  
Laptop Purpose => business  
Cpu's Manufacturer => Intel  
Cpu's Processor => i5 10210U  
Cpu's ClockSpeed => 1800.0

Graphic card's Manufacturer =>Intel  
Graphic card's Series =>Iris Xe  
Graphic card's Capacity =>Integrated

=====

Please Enter a valid purpose

**Q5)** Create a class Employee as Java Bean class with the following member variables.

- int employeeId
- String employeeName
- double salary
- double netSalary

Write the following method in the Employee class:

```
public void calculateNetSalary(int pfPercentage)
```

This method should take PF percentage as argument and Deduct the PF amount from the salary and set the netSalary as

```
netSalary=salary-pfPercentage*salary
```

Create a Main class which has the main method which invokes the method to get the input and prints the details as shown in the sample.

Also write this method inside Main class-

public static Employee getEmployeeDetails() - which gets the employee details - id, name, salary and pfPercentage from the user and returns the employee object.

In the main method, invoke the above method and print the output as shown below.

**Sample Input 1:**

Enter Id: 101  
Enter Name: Vivek  
Enter salary: 20000  
Enter PF percentage: 7

**Sample Output**

Id : 101  
Name : Vivek  
Salary : 20000.0  
Net Salary : 18600.0