Group A

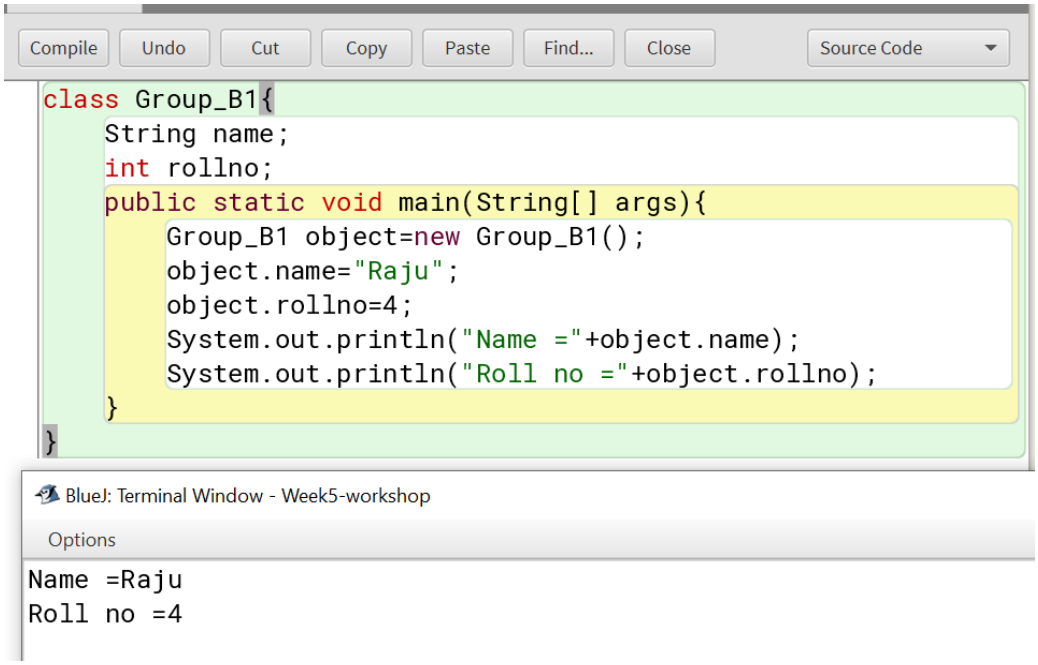
1. Which feature of OOP indicates code reusability?
   a) Abstraction
   b) Polymorphism
   c) Encapsulation
   d) Inheritance

2. Which of the following is not an access modifier?
   a) Abstract
   b) Public
   c) Private
   d) Protected

3. Encapsulation is a way of combining both data members and member functions, which operate on those data members, into a single unit. We call it a class in OOP generally. This feature have helped us modify the structures used in C language to be upgraded into class in JAVA and other languages. Show the process encapsulation in JAVA.

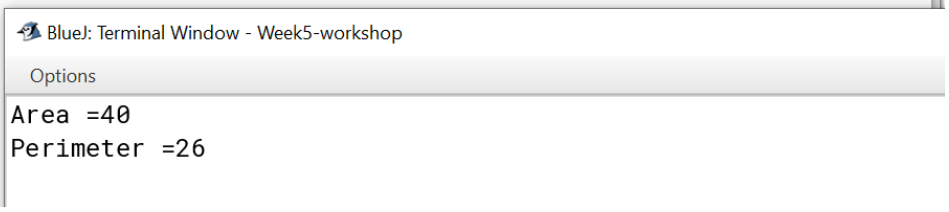
Group B

1. Create a class named 'Student' with String variable 'name' and integer variable 'roll_no'. Assign the value of roll_no as '2' and that of name as "John" by creating an object of the class Student.



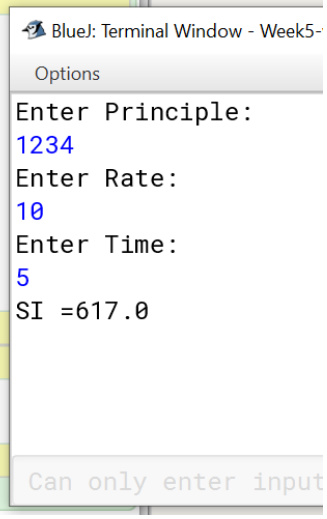
2. A rectangle has the length of 6 centimeters and width 4cm. Create a method each to print the area and perimeter of the given rectangle.

```
class Group_B2{
    int length=8;
    int width=5;
    public void Area(){
        int area= length*width;
        System.out.println("Area ="+area);
    }
    public void Perimeter(){
        int perimeter=2*(length+width);
        System.out.println("Perimeter ="+perimeter);
    }
    public static void main(String[] agrs){
        Group_B2 object=new Group_B2();
        object.Area();
        object.Perimeter();
    }
}
```



3. Write a program to print the simple interest by creating a class named “Savings” taking the values of its Principle, Time and Rate as parameters of a method named “Interest”.

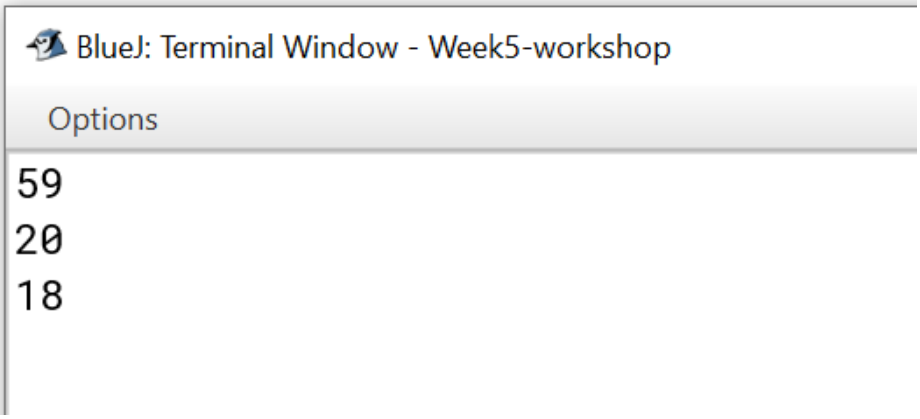
```
import java.util.Scanner;
public class Group_B3{
    double SimpleInterest;
    public void simpleinterest(){
        Scanner in=new Scanner(System.in);
        System.out.println("Enter Principle: ");
        double p=in.nextDouble();
        System.out.println("Enter Rate: ");
        double r=in.nextDouble();
        System.out.println("Enter Time: ");
        double t=in.nextDouble();
        SimpleInterest=(p*t*r)/100.0;
        System.out.println("SI ="+SimpleInterest);
    }
    public static void main(String[] args){
       Group_B3 s=new Group_B3();
      s.simpleinterest();
    }
}
```



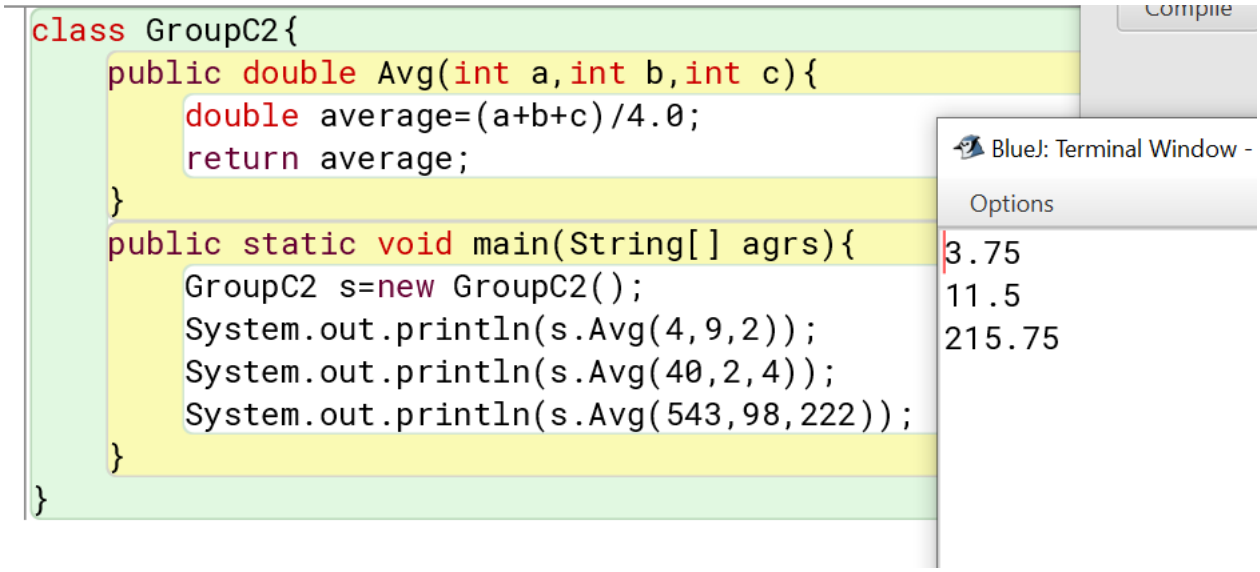
Group C

1. Write a program to find the sum of three numbers. Create a method findSum() of integer return type to print the sum.

```
class GroupC1{
public int sum(int a,int b,int c){
    int Sum=a+b+c;
    return Sum;
}
    public static void main(String[] agrs){
        GroupC1 s=new GroupC1();
        System.out.println(s.sum(49,3,7));
        System.out.println(s.sum(9,4,7));
        System.out.println(s.sum(6,4,8));
    }
}
```



2. Write the program to find the average of three input numbers by using a method returning a double value.



3. Create a class named 'Employee' having the following members:

   Data members:

   - Name
   - Age
   - Phone number
   - Address
   - Salary

   It also has a method named 'printSalary' which prints the salary of the members. Now, assign name, age, phone number, address and salary to an employee by making an object of both of these classes and print the same.

```java
class GroupC3{
String name, phone_no,address;
int age;
double salary;
public void printSalary (){
System.out.println( "Name of employee:"+name);
System.out.println( "Age:"+age);
System.out.println( "Phone number:"+phone_no);
System.out.println( "Salary:"+salary);
}
public static void main(String[] args){
GroupC3 em=new GroupC3();
em. name= "RAMU";
em.phone_no="98989898";
em. age=23 ;
em. address= "Bouddha";
em.salary=19999;
em.printSalary();
}
}
```

```
BlueJ: Terminal Window - Week5-worl
Options
Name of employee:RAMU
Age:23
Phone number:98989898
Salary:19999.0
Can only enter input w
```

Group D

1. Create a simple calculator program using java OOP.
    a. Take two non-zero inputs.
    b. Create a method to print sum, difference, product and quotient.
    c. Ask the user to choose between options (1-4) for sum, difference, product and divide operations.
    d. Give the user choice of another operation.

```java
import java.util.Scanner;

public class Calculator {
  double num1, num2;

  void getInput() {
    Scanner in = new Scanner(System.in);
    System.out.println("Enter first number: ");
    this.num1 = in.nextDouble();
    System.out.println("Enter second number: ");
    this.num2 = in.nextDouble();
  }

  void printSum() {
    System.out.println("Sum: " + (this.num1 + this.num2));
  }

  void printDifference() {
    System.out.println("Difference: " + (this.num1 - this.num2));
  }

  void printProduct() {
    System.out.println("Product: " + (this.num1 * this.num2));
  }
```

```
void printQuotient() {
  System.out.println("Quotient: " + (this.num1 / this.num2));
}

public static void main(String[] args) {
  Calculator calculator = new Calculator();
  calculator.getInput();

  while (true) {
    System.out.println("1. Sum");
    System.out.println("2. Difference");
    System.out.println("3. Product");
    System.out.println("4. Quotient");
    System.out.println("Enter your choice: ");

    Scanner in = new Scanner(System.in);
    int choice = in.nextInt();

    switch (choice) {
      case 1:
        calculator.printSum();
        break;
      case 2:
        calculator.printDifference();
        break;
```

saved

```
      case 1:
        calculator.printSum();
        break;
      case 2:
        calculator.printDifference();
        break;
      case 3:
        calculator.printProduct();
        break;
      case 4:
        calculator.printQuotient();
        break;
      default:
        System.out.println("Invalid choice.");
        break;
    }

    System.out.println("Do you want to perform another operation? (y/n)");
    char ch = in.next().charAt(0);
    if (ch == 'n') {
      break;
    }
  }
 }
}
```

saved

```
Enter first number:
123
Enter second number:
234
1. Sum
2. Difference
3. Product
4. Quotient
Enter your choice:
1
Sum: 357.0
Do you want to perform another operation? (
n
```