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JAVA PROGRAMMING
LAB ASSIGNMENT 03
Group: A, G3

- **Java Program to Display Prime Numbers Between Intervals Using Function**

Code:

```
public class Prime {

   public static void main(String[] args) {

      int low = 20, high = 50;

      while (low < high) {
         if(checkPrimeNumber(low))
            System.out.print(low + " ");

         ++low;
      }
   }

   public static boolean checkPrimeNumber(int num) {
      boolean flag = true;

      for(int i = 2; i <= num/2; ++i) {

         if(num % i == 0) {
            flag = false;
            break;
         }
      }

      return flag;
   }
```

}

Output:

```
23 29 31 37 41 43 47
```

- **Java Program to Find Factorial of a Number Using Recursion**

Code:

```
public class Factorial {

   public static void main(String[] args) {
      int num = 6;
      long factorial = multiplyNumbers(num);
      System.out.println("Factorial of " + num + " = " + factorial);
   }
   public static long multiplyNumbers(int num)
   {
      if (num >= 1)
         return num * multiplyNumbers(num - 1);
      else
         return 1;
   }
}
```

Output:

```
Factorial of 6 = 720
```

- **Java Program to Convert Binary Number to Decimal and vice-versa using functions**

Code:

```
class Main {
```

```
  public static void main(String[] args) {

    long num = 110110111;

    int decimal = convertBinaryToDecimal(num);

    System.out.println("Binary to Decimal");
    System.out.println(num + " = " + decimal);
  }

  public static int convertBinaryToDecimal(long num) {
    int decimalNumber = 0, i = 0;
    long remainder;

    while (num != 0) {
      remainder = num % 10;
      num /= 10;
      decimalNumber += remainder * Math.pow(2, i);
      ++i;
    }

    return decimalNumber;
  }
}
```

Output:

```
110110111 in binary = 439 in decimal
```

- **Java Program to Call One Constructor from another**

Code :

```
class Main {

  int sum;
```

```
  Main() {
    this(5, 2);
  }

  Main(int arg1, int arg2) {
    this.sum = arg1 + arg2;
  }

  void display() {
    System.out.println("Sum is: " + sum);
  }

  public static void main(String[] args) {

    Main obj = new Main();
    obj.display();
  }
}
```

Output:

```
Sum is: 7
```

- **Java Program to implement private constructors**

Code:

```
class Test {
  private Test () {
    System.out.println("This is a private constructor.");
  }
  public static void instanceMethod() {
    Test obj = new Test();
  }
}

class Main {
```

```
  public static void main(String[] args) {
    Test.instanceMethod();
  }
}
```

Output:

```
This is a private constructor.
```

- **Java Program to pass method call as arguments to another method**

Code:

```
class Main {
  public int add(int a, int b) {

    int sum = a + b;
    return sum;
  }

  public void square(int num) {
    int result = num * num;
    System.out.println(result);    // prints 576
  }
  public static void main(String[] args) {

    Main obj = new Main();
    obj.square(obj.add(15, 9));

  }
}
```

Output:

```
576
```