```java
/*

Que : 1. Write a java program to find out factorial of given number. (Using Scanner class).
Owner: Rushikesh Sanjay Pokharkar
Batch: PPA9

*/

//                      *********** Solution ************


import java.util.Scanner; // Import necessary classes.


class Factorial
{
        int calculate_factorial(int num) // Method for calculation of factorial of a number
        {
                if(num>0)
                {
                        int fact = 1;

                        for(int i = 1; i <= num; i++)
                        {
                                fact = fact * i;
                        }
                        return fact;
                }
                else
                {
                        return 0;
        }
    }

    public static void main(String args[]) // Main method
    {
        System.out.println("Enter a number: ");

        Scanner sc = new Scanner(System.in); // Created scanner class object for taking input
        int num = sc.nextInt(); // Taking input from user using scanner class object.

        Factorial f = new Factorial(); // Created object of a class Factorial for calling non-static methods.

        int result = f.calculate_factorial(num); // Passed input number for calculating factorial.

        System.out.printf("The factorial of %d is %d", num, result);
    }
}



/*

Que : 2. Write a java program to check whether given number is prime or not. (Using Scanner class).
Owner: Rushikesh Sanjay Pokharkar
Batch: PPA9

*/

//                      *********** Solution ************
```

```
import java.util.Scanner; // Import necessary classes.


class PrimeNumber
{
        int check_prime(int num) // Method to check number is prime or not.
        {
                int flag = 0;
                if(num>0)
                {
                        for(int i = 2; i < num; i++)
                        {
                                if(num % i == 0)
                                {
                                        flag = 1;
                                        break;
                                }
                        }
                }
                else
                {
                        flag = 1;
                }
                return flag;
        }

        public static void main(String args[]) // Main method
        {
                System.out.println("Enter a number: ");
                Scanner sc = new Scanner(System.in); // Created scanner class object for taking input

                int num = sc.nextInt(); // Taking input from user using scanner class object.


                PrimeNumber p = new PrimeNumber(); // Created object of a class for calling non-static methods.


                int result = p.check_prime(num); // Passed input number for checking prime number.


                if(result == 1)

                {

                        System.out.printf("The given number %d is Not a Prime Number.", num);

                }

                else

                {

                        System.out.printf("The given number %d is Prime Number.", num);

                }

        }

}



/*


Que : 3. Write a java program to swap two integer numbers. (Using Command Line Arguments).

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Batch: PPA9


*/


//                      *********** Solution ************
```

```
class SwapTwoNumbers
{

	public static void main(String args[]) // Main method
	{
		int num1 = Integer.parseInt(args[0]); // Assigning first command line input to first number
		int num2 = Integer.parseInt(args[1]); // Assigning second command line input to second number

		System.out.printf("Numbers before swaping are: num1= %d and num2= %d\n", num1, num2);

		// Logic to swap two numbers.
		int temp = num1;
		num1 = num2;
		num2 = temp;

		System.out.printf("Numbers after swaping are: num1= %d and num2= %d\n", num1, num2);
	}
}



/*

Que : 4. Write a java program to accept one string from user and print all characters from string. (Using BufferedReader class). charAt(i)
Owner: Rushikesh Sanjay Pokharkar
Batch: PPA9

*/
```

```
//                     *********** Solution ************

import java.io.InputStreamReader; // Import necessary classes required.
import java.io.BufferedReader;



class PrintCharacters
{
    void print_characters(String str) // Method to print All characters of string.
    {
        System.out.println("All Characters From above String are: ");
        for(int i = 0; i < str.length() ; i++)
        {
            System.out.println(str.charAt(i));
        }
    }

    public static void main(String args[]) throws Exception // Main method
    {

        System.out.println("Enter a String: ");

        BufferedReader br = new BufferedReader(new InputStreamReader(System.in)); //
Created object of class BufferedReader

        String str = br.readLine(); // Taking input using BufferedReader object.

        PrintCharacters p = new PrintCharacters(); // Created object of class to call the non-
static methods.

        p.print_characters(str);
        }
}


/*

Que : 5. Write a java program to check whether given number is Armstrong or not. (Using Scanner class).

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Batch: PPA9


*/


//                  *********** Solution ************



import java.util.Scanner; // Import necessary classes.




class Armstrong

{

        int check_armstrong(int num) // Method to check number is armstrong or not.

        {

                int temp = num, len = 0;

                while(temp > 0) // While loop to calculate the lenght of the number.

                {

                        len++;

                        temp = temp/10;

                }


                int armstrong = 0;
        while(num > 0) // While loop to generate the resultent number
        {
            int result = 1;
            temp = num%10;
            for(int i = 0; i < len; i++)
            {
                result = result * temp;
            }
            armstrong = armstrong + result;
            num = num/10;
        }

        return armstrong;

    }

    public static void main(String args[]) // Main method
    {
        System.out.println("Enter a number: ");

        Scanner sc = new Scanner(System.in); // Created scanner class object for taking input
        int num = sc.nextInt(); // Taking input from user using scanner class object.

        Armstrong a = new Armstrong(); // Created object of a class for calling non-static methods.

        int result = a.check_armstrong(num); // Passed input number to check whether it is armstrong or not.

        if(result == num)
        {
            System.out.printf("The given number %d is an Armstrong Number.", num);
        }
        else
        {
            System.out.printf("The given number %d is Not an Armstrong Number.",
num);
        }

    }
}



/*

Que : 6. Write a java program to print all alphabets from ‘A’ to ‘Z’.
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Batch: PPA9

*/

//                  *********** Solution ************




class Alphabets
{
    void print_alphabets() // Method to print all alphabets from A to Z.
    {
        System.out.print("All The Alphabets from A to Z are: ");
        for(int i = 65; i <= 90; i++)
        {
```

```
			System.out.printf("%c ", i);
		}
	}

	public static void main(String args[]) // Main method
	{
		Alphabets a = new Alphabets(); // Created object of a class for calling non-static methods.

		a.print_alphabets();
	}
}



/*

Que : 7. Write a java program to illustrate static in java. (Static - block, field, method)
Owner: Rushikesh Sanjay Pokharkar
Batch: PPA9

*/

//			*********** Solution ************

import java.util.Scanner; // Import necessary classes.

class College
{
	static String college_code, college_name = "AVCOE"; // created the static fields.

	static // Created the static block to initialize the static field.
```

```
    {
        college_code = "deij54965"; // Initialize the static field in static block.
    }

    void books() // created the non-static method.
    {
        System.out.println("All books of college are avilable here.");
    }

    static void labs() // created the static method.
    {
        System.out.println("All Labs Information is in this block.");
    }

}

class Students
{
    int rollNo, id;
    String name, div;

    Students(int rollNo, int id, String name, String div) // created the constructor to initialize the non-static fields.
    {
        this.rollNo = rollNo;
        this.id = id;
        this.name = name;
        this.div = div;
    }

    void print_details() // method to print the details of students including static and non-static fields.
    {
        System.out.printf("College Name of Student: %s\n", College.college_name); // Access the static field using class name.
        System.out.printf("College code: %s\n", College.college_code); // Access the static field using class name.
        System.out.printf("Name of student: %s\n", name);
        System.out.printf("Division of student: %s\n", div);
        System.out.printf("Id of student: %d\n", id);
        System.out.printf("Roll no of student: %d\n", rollNo);
    }

    public static void main(String args[])
    {

        Scanner sc = new Scanner(System.in); // Created the scanner class object.

        System.out.print("Enter Name of Student1: ");
        String name1 = sc.nextLine();
        System.out.print("Enter Div: ");
        String div1 = sc.nextLine();
        System.out.print("Enter rollNo of Student: ");
        int rollNo1 = sc.nextInt();
        System.out.print("Enter id of Student: ");
        int id1 = sc.nextInt();
        Students s1 = new Students(rollNo1, id1, name1, div1); // created the first object of student class.
        s1.print_details();
        College c = new College();
        c.books(); // Accessed the non-static method by creating the object of the class.


        System.out.print("Enter Name of Student2: ");
```

```
                        sc.nextLine();
                        String name2 = sc.nextLine();
                        System.out.print("Enter Div: ");
                        String div2 = sc.nextLine();
                        System.out.print("Enter rollNo of Student: ");
                        int rollNo2 = sc.nextInt();
                        System.out.print("Enter id of Student: ");
                        int id2 = sc.nextInt();
                        Students s2 = new Students(rollNo2, id2, name2, div2); // created the second object
of the class.
                        s2.print_details();
                        College.labs(); // Accessed the static method usint the class name


            }


}




/*


Que : 8. Write a java program to illustrate final in java. (Final - field, method, local variable, outer
class)

Owner: Rushikesh Sanjay Pokharkar

Batch: PPA9


*/


//                          *********** Solution ************


import java.util.Scanner;
```

```
final class College

{

	final static String college_code, college_name = "AVCOE"; // created the final static fields.


	static // Created the static block to initialize the static field.

	{

		college_code = "deij54965"; // Initialize the final static field in static block.

	}


	final void books() // created the non-static final method.

	{

		final int a;

		a = 10;


		System.out.println("All books of college are avilable here.");

		System.out.println("The value of final local variable is: "+a);

	}


	static void labs() // created the static method.

	{

		System.out.println("All Labs Information is in this block.");

	}


}


class Students

{

	int rollNo, id;

	String name, div;

	final String StudentUnion;
	{ // Created the non-static block to assign the values to the final fields.
		StudentUnion = "Student_Union_Name";
	}

	Students(int rollNo, int id, String name, String div) // created the constructor to initialize the non-static fields.
	{
		this.rollNo = rollNo;
		this.id = id;
		this.name = name;
		this.div = div;
	}

	void print_details() // method to print the details of students including final static and non-static fields.
	{
		System.out.printf("College Name of Student: %s\n", College.college_name); // Access the static field using class name.
		System.out.printf("College code: %s\n", College.college_code); // Access the static field using class name.
		System.out.printf("Name of student: %s\n", name);
		System.out.printf("Division of student: %s\n", div);
		System.out.printf("Id of student: %d\n", id);
		System.out.printf("Roll no of student: %d\n", rollNo);
		System.out.printf("Student Union: %s\n", StudentUnion);
	}

	public static void main(String args[])
	{

		Scanner sc = new Scanner(System.in); // Created the scanner class object.
```

```
        System.out.print("Enter Name of Student1: ");
        String name1 = sc.nextLine();
        System.out.print("Enter Div: ");
        String div1 = sc.nextLine();
        System.out.print("Enter rollNo of Student: ");
        int rollNo1 = sc.nextInt();
        System.out.print("Enter id of Student: ");
        int id1 = sc.nextInt();
        Students s1 = new Students(rollNo1, id1, name1, div1); // created the first object of student class.
        s1.print_details();
        College c = new College();
        c.books(); // Accessed the non-static method by creating the object of the class.


        System.out.print("Enter Name of Student2: ");
        sc.nextLine();
        String name2 = sc.nextLine();
        System.out.print("Enter Div: ");
        String div2 = sc.nextLine();
        System.out.print("Enter rollNo of Student: ");
        int rollNo2 = sc.nextInt();
        System.out.print("Enter id of Student: ");
        int id2 = sc.nextInt();
        Students s2 = new Students(rollNo2, id2, name2, div2); // created the second object of the class.
        s2.print_details();
        College.labs(); // Accessed the static method usint the class name

    }

}
```

```
/*

Que : 9. Write a java program to accept one integer from user and check whether given number is divisible by 7 or not (using divisibility condition)
Example: the number 371: 37 – (2×1) = 37 – 2 = 35; 3 – (2 × 5) = 3 – 10 = -7; thus, since -7 is divisible by 7, 371 is divisible by 7.
Owner: Rushikesh Sanjay Pokharkar
Batch: PPA9

*/

//                    *********** Solution ************

import java.util.Scanner; // Import necessary classes

class DivisibilityOf7
{
        int check_divisibility(int num) // Method to check divisibility of 7 using divisibility conditions.
        {
                if(num < 0) // Condition if number is negative then make it positive.
                {
                        return check_divisibility(-num);
                }

                if(num == 0 || num == 7) // if number is one digit and equal to 7  or 0 then return 1.
                {
                        return 1;
                }
                if(num <= 9) // If number is one digit and not equal to 7 then return 0.
                {
                        return 0;
                }

                int temp = num%10;
                temp = 2*temp;
                num = num/10;
                num = num - temp;

                return check_divisibility(num);
        }

        public static void main(String args[])
        {
                Scanner sc = new Scanner(System.in); // Created the object of class scanner to take input.

                System.out.print("Enter a Number: ");
                int num = sc.nextInt(); // Taking integer input using scanner class object.

                DivisibilityOf7 d = new DivisibilityOf7(); // Created the object of class to access the non-static methods.

                int result = d.check_divisibility(num);

                if(result == 1)
                {
                        System.out.printf("The given number %d is divisible by 7.", num);
                }
                else
                {
            System.out.printf("The given number %d is Not divisible by 7.", num);
        }

    }
}


/*

Que : 10.Write a java program to accept one string and one character from user and print count of given char in string.
Owner: Rushikesh Sanjay Pokharkar
Batch: PPA9

*/

//                  *********** Solution ************

import java.util.Scanner; // Import necessary classes

class CountChar
{
    int character_count(String str, char ch) // Method to count the count of character in given string.
    {
        int count = 0;
        for(int i = 0; i < str.length(); i++)
        {
            if(str.charAt(i) == ch)
            {
                count++;
            }
        }

        return count;
    }

    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in); // Created the object of class scanner to take input.

        System.out.print("Enter a String: ");
        String str = sc.nextLine(); // Taking string input using scanner class object.

        System.out.print("Enter the Character to count: ");
        String ch = sc.next(); // taking string input using scanner class object.

        CountChar c = new CountChar(); // Created the object of class to access the non-static methods.

        int result = c.character_count(str, ch.charAt(0));

        System.out.printf("The count of '%c' in given string is: %d", ch.charAt(0), result);
    }
}
```