Main.java

```java
import java.util.Scanner;

public class Main {

    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);

        System.out.print("Enter the employee's salary: $");
        double salary = input.nextDouble();

        System.out.print("Enter the employee's grade (A/B): ");
        String grade = input.next();

        double bonusPercentage = 0.0;

        if (salary < 10000) {
            bonusPercentage += 0.02;
        }

        if (grade.equalsIgnoreCase("A")) {
            bonusPercentage += 0.05;
        } else if (grade.equalsIgnoreCase("B")) {
            bonusPercentage += 0.1;
        }

        double bonus = salary * bonusPercentage;
        double totalSalary = salary + bonus;

        System.out.println("Bonus: $" + bonus);
        System.out.println("Total Salary: $" + totalSalary);
    }

}
```

Console × Shell × +

```
> sh -c javac -classpath .:target/dependency/* -d . $(find . -type f -name '*.java')
> java -classpath .:target/dependency/* Main
Enter the employee's salary: $50000
Enter the employee's grade (A/B): B
Bonus: $5000.0
Total Salary: $55000.0
>
```

Main.java

```java
import java.util.Scanner;

public class Main {

    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);

        System.out.print("Enter the value of n: ");
        int n = input.nextInt();

        int count = 0;
        int num = 1;

        while (count < n) {
            int sum = 0;

            for (int i = 1; i < num; i++) {
                if (num % i == 0) {
                    sum += i;
                }
            }

            if (sum == num) {
                System.out.println(num);
                count++;
            }

            num++;
        }
    }

}
```

Console × Shell × +

```
> sh -c javac -classpath .:target/dependency/* -d . $(find . -type f -name '*.
> java -classpath .:target/dependency/* Main
Enter the value of n: 3
6
28
496
>
```

Main.java

```java
import java.util.Scanner;

public class Main {

    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);

        System.out.print("Enter the marks of subject 1: ");
        int subject1 = input.nextInt();

        System.out.print("Enter the marks of subject 2: ");
        int subject2 = input.nextInt();

        System.out.print("Enter the marks of subject 3: ");
        int subject3 = input.nextInt();

        System.out.print("Enter the marks of subject 4: ");
        int subject4 = input.nextInt();

        int totalMarks = subject1 + subject2 + subject3 + subject4;
        double aggregatePercentage = (totalMarks / 4.0);
        String grade;

        if (aggregatePercentage >= 75) {
            grade = "Distinction";
        } else if (aggregatePercentage >= 60 && aggregatePercentage < 75) {
            grade = "First Division";
        } else if (aggregatePercentage >= 50 && aggregatePercentage < 60) {
            grade = "Second Division";
        } else if (aggregatePercentage >= 40 && aggregatePercentage < 50) {
            grade = "Third Division";
        } else {
            grade = "Fail";
        }

        System.out.println("Total Marks: " + totalMarks);
        System.out.println("Aggregate Percentage: " + aggregatePercentage + "%");
        System.out.println("Grade: " + grade);
    }

}
```

```
> sh -c javac -classpath .:target/dependency/* -d . $(find . -type f -name '*.java')
> java -classpath .:target/dependency/* Main
Enter the marks of subject 1: 90
Enter the marks of subject 2: 91
Enter the marks of subject 3: 92
Enter the marks of subject 4: 93
Total Marks: 366
Aggregate Percentage: 91.5%
Grade: Distinction
>
```

Main.java

```java
import java.util.Scanner;

public class Main {

    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);

        int positiveCount = 0;
        int positiveSum = 0;

        int negativeCount = 0;
        int negativeSum = 0;

        int number = 0;

        while (number != -1) {
            System.out.print("Enter a number (-1 to quit): ");
            number = input.nextInt();

            if (number > 0) {
                positiveCount++;
                positiveSum += number;
            } else if (number < 0) {
                negativeCount++;
                negativeSum += number;
            }
        }

        double positiveAverage = (double) positiveSum / positiveCount;
        double negativeAverage = (double) negativeSum / negativeCount;

        System.out.println("Average of positive numbers: " + positiveAverage);
        System.out.println("Average of negative numbers: " + negativeAverage);
    }

}
```

```
> sh -c javac -classpath .:target/dependency/* -d . $(find . -type f -name '*.java')
> java -classpath .:target/dependency/* Main
Enter a number (-1 to quit): 7
Enter a number (-1 to quit): -2
Enter a number (-1 to quit): 9
Enter a number (-1 to quit): -8
Enter a number (-1 to quit): -1
Average of positive numbers: 8.0
Average of negative numbers: -3.666666666666665
>
```

Main.java

```java
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);

        int upperCount = 0;
        int lowerCount = 0;
        int numCount = 0;

        System.out.println("Enter a character (* to stop):");
        while (true) {
            char c = input.next().charAt(0);
            if (c == '*') {
                break;
            }

            if (Character.isUpperCase(c)) {
                upperCount++;
            } else if (Character.isLowerCase(c)) {
                lowerCount++;
            } else if (Character.isDigit(c)) {
                numCount++;
            }
        }

        System.out.println("Uppercase count: " + upperCount);
        System.out.println("Lowercase count: " + lowerCount);
        System.out.println("Numeric count: " + numCount);
    }
}
```

```
> sh -c javac -classpath .:target/dependency/* -d . $(find . -type f -name '*.j
> java -classpath .:target/dependency/* Main
Enter a character (* to stop):
W
d
A
h
H
*
Uppercase count: 3
Lowercase count: 2
Numeric count: 0
>
```

Main.java

```java
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);

        System.out.print("Enter the value of n: ");
        int n = input.nextInt();

        long factorial = calculateFactorial(n);

        System.out.println("The factorial of " + n + " is: " + factorial);
    }

    public static long calculateFactorial(int n) {
        if (n == 0) {
            return 1;
        } else {
            return n * calculateFactorial(n - 1);
        }
    }
}
```

```
> sh -c javac -classpath .:target/dependency/* -d . $(find . -type f -name '*.j
> java -classpath .:target/dependency/* Main
Enter the value of n: 6
The factorial of 6 is: 720
>
```

Main.java

```java
import java.util.Arrays;
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);

        int[] list = {14, 67, 48, 23, 5, 62};
        System.out.print("List: " + Arrays.toString(list) + "\n");

        System.out.print("Enter N: ");
        int n = input.nextInt();

        int nthLargestNumber = findNthLargestNumber(list, n);

        System.out.println(n + "th Largest number: " + nthLargestNumber);
    }

    public static int findNthLargestNumber(int[] list, int n) {
        Arrays.sort(list);
        return list[list.length - n];
    }
}
```

```
> sh -c javac -classpath .:target/dependency/* -d . $(find . -type f -name '*.j
> java -classpath .:target/dependency/* Main
List: [14, 67, 48, 23, 5, 62]
Enter N: 4
4th Largest number: 23
>
```

Main.java

```java
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);

        System.out.print("Enter a binary number: ");
        int binary = input.nextInt();

        int decimal = binaryToDecimal(binary);
        String octal = decimalToOctal(decimal);

        System.out.println("Decimal: " + decimal);
        System.out.println("Octal: " + octal);
    }

    public static int binaryToDecimal(int binary) {
        int decimal = 0;
        int power = 0;

        while (binary != 0) {
            int digit = binary % 10;
            decimal += digit * Math.pow(2, power);
            power++;
            binary /= 10;
        }

        return decimal;
    }

    public static String decimalToOctal(int decimal) {
        String octal = "";

        while (decimal != 0) {
            int digit = decimal % 8;
            octal = digit + octal;
            decimal /= 8;
        }

        return octal;
    }
}
```

```
› sh -c javac -classpath .:target/dependency/* -d . $(find . -type f -name '*.java')
› java -classpath .:target/dependency/* Main
Enter a binary number: 1101
Decimal: 13
Octal: 15
›
```

Main.java

```java
import java.util.Scanner;

public class Main {

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a string: ");
        String str = sc.nextLine();

        int count = 0;
        for (int i = 0; i < str.length(); i++) {
            char ch = str.charAt(i);
            if (!Character.isLetterOrDigit(ch) &&
!Character.isWhitespace(ch)) {
                count++;
            }
        }

        System.out.println("Number of special characters: " + count);
    }
}
```

```
> sh -c javac -classpath .:target/dependency/* -d . $(find . -type
ame '*.java')
> java -classpath .:target/dependency/* Main
Enter a string: Modi Birthday @ September 17, #&$% is the wishes code f
or him
Number of special characters: 6
>
```

Main.java

```java
import java.util.Arrays;
import java.util.Scanner;

public class Main {

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter the size of the array: ");
        int n = sc.nextInt();

        int[] arr = new int[n];
        System.out.println("Enter the elements of the array:");
        for (int i = 0; i < n; i++) {
            arr[i] = sc.nextInt();
        }

        // Sort the array to group duplicate elements together
        Arrays.sort(arr);

        int len = 1; // length of the new array
        for (int i = 1; i < n; i++) {
            if (arr[i] != arr[i-1]) {
                arr[len++] = arr[i];
            }
        }

        // Print the new array with duplicates removed
        System.out.println("Array with duplicates removed:");
        for (int i = 0; i < len; i++) {
            System.out.print(arr[i] + " ");
        }
    }
}
```

```
> sh -c javac -classpath .:target/dependency/* -d . $(find . -type f -name '*.ja
> java -classpath .:target/dependency/* Main
Enter the size of the array: 7
Enter the elements of the array:
10
20
20
30
40
40
50
Array with duplicates removed:
10 20 30 40 50 >
```

Main.java

```java
import java.util.Scanner;

class Bank {
    float getROI() {
        return 0;
    }
}

class SBI extends Bank {
    float getROI() {
        return 8.4f;
    }
}

class ICICI extends Bank {
    float getROI() {
        return 7.3f;
    }
}

class AXIS extends Bank {
    float getROI() {
        return 9.7f;
    }
}

public class Main {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        System.out.print("Enter the name of the bank (SBI, ICICI, AXIS): ");
        String bankName = input.nextLine().toUpperCase();

        Bank bank;
        switch (bankName) {
            case "SBI":
                bank = new SBI();
                break;
            case "ICICI":
                bank = new ICICI();
                break;
            case "AXIS":
                bank = new AXIS();
                break;
            default:
                System.out.println("Invalid bank name!");
                return;
        }

        System.out.println(bankName + ", " + bank.getROI() + "%");
    }
}
```

Console / Shell

```
> sh -c javac -classpath .:target/dependency/* -d . $(find . -type f -name '*.java')
> java -classpath .:target/dependency/* Main
Enter the name of the bank (SBI, ICICI, AXIS): SBI
SBI, 8.4%
>
```

Main.java

```java
import java.util.Scanner;
class SuperClass {
    int num;

    SuperClass(int num) {
        this.num = num;
    }
}

class SubClass extends SuperClass {
    int num;

    SubClass(int num1, int num2) {
        super(num1);
        this.num = num2;
    }

    void display() {
        System.out.println("SuperClass num: " + super.num);
        System.out.println("SubClass num: " + num);
    }
}

public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter two integers: ");
        int num1 = sc.nextInt();
        int num2 = sc.nextInt();
        SubClass obj = new SubClass(num1, num2);
        obj.display();
    }
}
```

```
> sh -c javac -classpath .:target/dependency/* -d . $(find . -type f -name '*.ja
> java -classpath .:target/dependency/* Main
Enter two integers: 100
200
SuperClass num: 100
SubClass num: 200
>
```