

# BonusCalculator.java

```
import java.util.Scanner;

public class BonusCalculator {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        double[][] employeeData = new double[10][2]; // [[0]=salary, [[1]=years
        double[][] bonusData = new double[10][2]; // [[0]=bonus, [[1]=new salary
        double totalBonus = 0, totalOldSalary = 0, totalNewSalary = 0;

        for (int i = 0; i < 10; i++) {
            System.out.println("Enter salary and years of service for employee " + (i+1) + ":");
            double salary = sc.nextDouble();
            double years = sc.nextDouble();
            if (salary <= 0 || years < 0) {
                System.out.println("Invalid input. Try again.");
                i--; continue;
            }
            employeeData[i][0] = salary;
            employeeData[i][1] = years;
        }

        for (int i = 0; i < 10; i++) {
            double bonus = employeeData[i][1] > 5 ? 0.05 * employeeData[i][0] : 0.02 *
            employeeData[i][0];
            double newSalary = employeeData[i][0] + bonus;
            bonusData[i][0] = bonus;
            bonusData[i][1] = newSalary;
            totalBonus += bonus;
            totalOldSalary += employeeData[i][0];
            totalNewSalary += newSalary;
        }

        System.out.println("Total Bonus: " + totalBonus);
        System.out.println("Total Old Salary: " + totalOldSalary);
        System.out.println("Total New Salary: " + totalNewSalary);
        sc.close();
    }
}
```

YoungestTallest.java

```
import java.util.Scanner;

public class YoungestTallest {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int[] ages = new int[3];
        double[] heights = new double[3];
        String[] names = {"Amar", "Akbar", "Anthony"};

        for (int i = 0; i < 3; i++) {
            System.out.println("Enter age and height for " + names[i] + ":");
            ages[i] = sc.nextInt();
            heights[i] = sc.nextDouble();
        }

        int youngestIndex = 0;
        int tallestIndex = 0;

        for (int i = 1; i < 3; i++) {
            if (ages[i] < ages[youngestIndex]) youngestIndex = i;
            if (heights[i] > heights[tallestIndex]) tallestIndex = i;
        }

        System.out.println("Youngest: " + names[youngestIndex]);
        System.out.println("Tallest: " + names[tallestIndex]);
        sc.close();
    }
}
```

# LargestSecondLargest.java

```
import java.util.Scanner;

public class LargestSecondLargest {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter a number:");
        int number = sc.nextInt();
        int[] digits = new int[10];
        int index = 0;

        while (number != 0 && index < 10) {
            digits[index++] = number % 10;
            number /= 10;
        }

        int max = 0, secondMax = 0;
        for (int i = 0; i < index; i++) {
            if (digits[i] > max) {
                secondMax = max;
                max = digits[i];
            } else if (digits[i] > secondMax && digits[i] != max) {
                secondMax = digits[i];
            }
        }

        System.out.println("Largest: " + max);
        System.out.println("Second Largest: " + secondMax);
        sc.close();
    }
}
```

DynamicLargestSecondLargest.java

```
import java.util.Scanner;
import java.util.Arrays;
public class DynamicLargestSecondLargest {
public static void main(String[] args) {
Scanner sc = new Scanner(System.in);
System.out.println("Enter a number:");
int number = sc.nextInt();
int maxDigit = 10;
int[] digits = new int[maxDigit];
int index = 0;

while (number != 0) {
if (index == maxDigit) {
maxDigit += 10;
digits = Arrays.copyOf(digits, maxDigit);
}
digits[index++] = number % 10;
number /= 10;
}

int max = 0, secondMax = 0;
for (int i = 0; i < index; i++) {
if (digits[i] > max) {
secondMax = max;
max = digits[i];
} else if (digits[i] > secondMax && digits[i] != max) {
secondMax = digits[i];
}
}

System.out.println("Largest: " + max);
System.out.println("Second Largest: " + secondMax);
sc.close();
}
}
```

# ReverseDigits.java

```
import java.util.Scanner;
public class ReverseDigits {
public static void main(String[] args) {
Scanner sc = new Scanner(System.in);
System.out.println("Enter a number:");
int num = sc.nextInt();
int temp = num, count = 0;
while (temp != 0) {
temp /= 10;
count++;
}
int[] digits = new int[count];
for (int i = 0; i < count; i++) {
digits[i] = num % 10;
num /= 10;
}
System.out.print("Reversed number: ");
for (int digit : digits) {
System.out.print(digit);
}
sc.close();
}
}
```

BMICalculator.java

```
import java.util.Scanner;
public class BMICalculator {
public static void main(String[] args) {
Scanner sc = new Scanner(System.in);
System.out.print("Enter number of persons: ");
int n = sc.nextInt();
double[] height = new double[n];
double[] weight = new double[n];
double[] bmi = new double[n];
String[] status = new String[n];

for (int i = 0; i < n; i++) {
System.out.println("Enter height (in meters) and weight (in kg) for person " + (i + 1));
height[i] = sc.nextDouble();
weight[i] = sc.nextDouble();
bmi[i] = weight[i] / (height[i] * height[i]);
if (bmi[i] < 18.5) status[i] = "Underweight";
else if (bmi[i] < 25) status[i] = "Normal";
else if (bmi[i] < 30) status[i] = "Overweight";
else status[i] = "Obese";
}

for (int i = 0; i < n; i++) {
System.out.println("Person " + (i + 1) + ": Height=" + height[i] + " Weight=" +
weight[i] + " BMI=" + bmi[i] + " Status=" + status[i]);
}
sc.close();
}
}
```

# BMICalculator2D.java

```
import java.util.Scanner;
public class BMICalculator2D {
public static void main(String[] args) {
Scanner sc = new Scanner(System.in);
System.out.print("Enter number of persons: ");
int n = sc.nextInt();
double[][] personData = new double[n][3];
String[] status = new String[n];

for (int i = 0; i < n; i++) {
double height, weight;
do {
System.out.println("Enter height (m) and weight (kg) for person " + (i + 1) + ":");
height = sc.nextDouble();
weight = sc.nextDouble();
} while (height <= 0 || weight <= 0);
personData[i][0] = weight;
personData[i][1] = height;
personData[i][2] = weight / (height * height);
if (personData[i][2] < 18.5) status[i] = "Underweight";
else if (personData[i][2] < 25) status[i] = "Normal";
else if (personData[i][2] < 30) status[i] = "Overweight";
else status[i] = "Obese";
}

for (int i = 0; i < n; i++) {
System.out.println("Person " + (i+1) + ": Height=" + personData[i][1] + " Weight=" +
personData[i][0] + " BMI=" + personData[i][2] + " Status=" + status[i]);
}
sc.close();
}
}
```

StudentGrades.java

```
import java.util.Scanner;
public class StudentGrades {
public static void main(String[] args) {
Scanner sc = new Scanner(System.in);
int[][] marks = new int[5][5];
String[] grades = new String[5];

for (int i = 0; i < 5; i++) {
System.out.println("Enter 5 subject marks for student " + (i + 1) + ":");
int total = 0;
for (int j = 0; j < 5; j++) {
marks[i][j] = sc.nextInt();
total += marks[i][j];
}
int avg = total / 5;
if (avg >= 90) grades[i] = "A";
else if (avg >= 80) grades[i] = "B";
else if (avg >= 70) grades[i] = "C";
else if (avg >= 60) grades[i] = "D";
else grades[i] = "F";
}

for (int i = 0; i < 5; i++) {
System.out.print("Student " + (i+1) + " Marks: ");
for (int j = 0; j < 5; j++) System.out.print(marks[i][j] + " ");
System.out.println("Grade: " + grades[i]);
}
sc.close();
}
}
```



# GradeStatusCount.java

```
import java.util.Scanner;

public class GradeStatusCount {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int passCount = 0, failCount = 0;
        String[] names = new String[10];
        int[][] marks = new int[10][3];

        for (int i = 0; i < 10; i++) {
            System.out.println("Enter name and 3 subject marks for student " + (i + 1) + ":");
            names[i] = sc.next();
            int total = 0;
            for (int j = 0; j < 3; j++) {
                marks[i][j] = sc.nextInt();
                total += marks[i][j];
            }
            double avg = total / 3.0;
            if (avg >= 50) passCount++;
            else failCount++;
        }

        System.out.println("Passed: " + passCount);
        System.out.println("Failed: " + failCount);
        sc.close();
    }
}
```

# DigitFrequency.java

```
import java.util.Scanner;
public class DigitFrequency {
public static void main(String[] args) {
Scanner sc = new Scanner(System.in);
System.out.println("Enter a number:");
int number = sc.nextInt();
int[] freq = new int[10];

while (number > 0) {
freq[number % 10]++;
number /= 10;
}

System.out.println("Digit Frequencies:");
for (int i = 0; i < 10; i++) {
if (freq[i] > 0) {
System.out.println(i + ": " + freq[i]);
}
}
sc.close();
}
```