



COMSATS University Islamabad Abbottabad Campus

SUBMITTED BY: ZULQARNAIN HAIDER

REG #: SP24-BSE-179

SUBJECT: Data Structure Lab 1

SUBMITTED TO: Nauman khan

DATE: 03-09-2025

Calculator:

```
>Main.java          Calculator.java ×      PizzaBillingSystem.java
1 import java.util.Scanner;
2
3 public class Calculator {
4     public static void main(String[] args) {
5         Scanner input = new Scanner(System.in);
6
7         float quizMarks, assignmentMarks, midTermMarks, finalTermMarks;
8
9         while (true) {
10             System.out.print("Enter Quiz Marks (0-15): ");
11             quizMarks = input.nextFloat();
12             if (quizMarks >= 0 && quizMarks <= 15) {
13                 break;
14             } else {
15                 System.out.println("Invalid input! Quiz marks must be between 0 and 15.\n");
16             }
17         }
18
19         while (true) {
20             System.out.print("Enter Assignment Marks (0-10): ");
21             assignmentMarks = input.nextFloat();
22             if (assignmentMarks >= 0 && assignmentMarks <= 10) {
23                 break;
24             } else {
25                 System.out.println("Invalid input! Assignment marks must be between 0 and 10.\n");
26             }
27         }
28
29         while (true) {
30             System.out.print("Enter Mid Term Marks (0-25): ");
31
32             while (true) {
33                 System.out.print("Enter Final Term Marks (0-50): ");
34                 finalTermMarks = input.nextFloat();
35                 if (finalTermMarks >= 0 && finalTermMarks <= 50) {
36                     break;
37                 } else {
38                     System.out.println("Invalid input! Final Term marks must be between 0 and 50.\n");
39                 }
40             }
41
42             float total = quizMarks + assignmentMarks + midTermMarks + finalTermMarks;
43             float percentage = (total / 100) * 100;
44
45             System.out.println("\nTotal Marks: " + total + "/100");
46             System.out.println("Percentage: " + percentage + "%");
47
48             if (percentage >= 85 && percentage <= 100) {
49                 System.out.println("Grade: A");
50             } else if (percentage >= 70) {
51                 System.out.println("Grade: B");
52             } else if (percentage >= 50) {
53                 System.out.println("Grade: C");
54             } else if (percentage >= 0) {
55                 System.out.println("Grade: F");
56             } else {
57                 System.out.println("Error calculating grade.");
58             }
59         }
60     }
61 }
```

```
        System.out.println("Grade: F");
    } else {
        System.out.println("Error calculating grade.");
    }

    input.close();
}

.

C:\Users\DELL\.jdks\openjdk-24.0.1\bin\java.exe "-javaagent:D:\IntelliJ\IntelliJ IDEA Comm
Enter Quiz Marks (0-15): 12
Enter Assignment Marks (0-10): 9
Enter Mid Term Marks (0-25): 20
Enter Final Term Marks (0-50): 40

Total Marks: 81.0/100
Percentage: 81.0%
Grade: B

Process finished with exit code 0
```

Pizza Billing System:

```
>Main.java ✘ Calculator.java ✘ PizzaBillingSystem.java ✘
1 import java.util.Scanner;
2
3 public class PizzaBillingSystem {
4
5     public static void main(String[] args) {
6         Scanner input = new Scanner(System.in);
7         int bill = 0;
8         String size;
9
10        while (true) {
11            System.out.print("Enter pizza size (small/medium/large): ");
12            size = input.nextLine().toLowerCase();
13
14            if (size.equals("small")) {
15                bill = 100;
16                break;
17            } else if (size.equals("medium")) {
18                bill = 200;
19                break;
20            } else if (size.equals("large")) {
21                bill = 300;
22                break;
23            } else {
24                System.out.println("Invalid size! Please try again.\n");
25            }
26        }
27
28        while (true) {
29            System.out.print("Do you want pepperoni? (yes/no): ");
30            String pepperoni = input.nextLine().toLowerCase();
31
32            while (true) {
33                System.out.print("Do you want pepperoni? (yes/no): ");
34                String pepperoni = input.nextLine().toLowerCase();
35
36                if (pepperoni.equals("yes")) {
37                    if (size.equals("small")) {
38                        bill += 30;
39                    } else {
40                        bill += 50;
41                    }
42                    break;
43                } else if (pepperoni.equals("no")) {
44                    break;
45                } else {
46                    System.out.println("Invalid input! Please enter yes or no.\n");
47                }
48            }
49
50            while (true) {
51                System.out.print("Do you want extra cheese? (yes/no): ");
52                String cheese = input.nextLine().toLowerCase();
53
54                if (cheese.equals("yes")) {
55                    bill += 20;
56                    break;
57                }
58            }
59        }
60    }
61}
```

```
        break;
    } else if (cheese.equals("no")) {
        break;
    } else {
        System.out.println("Invalid input! Please enter yes or no.\n");
    }
}

System.out.println("\nYour Final Bill is: " + bill + " rupees");

input.close();
}
}
```

```
C:\Users\DELL\.jdks\openjdk-24.0.1\bin\java.exe "-javaagent:D:\IntelliJ\IntelliJ
Enter pizza size (small/medium/large): small
Do you want pepperoni? (yes/no): yes
Do you want extra cheese? (yes/no): no

Your Final Bill is: 130 rupees
```

```
Process finished with exit code 0
```