

Lecture 4

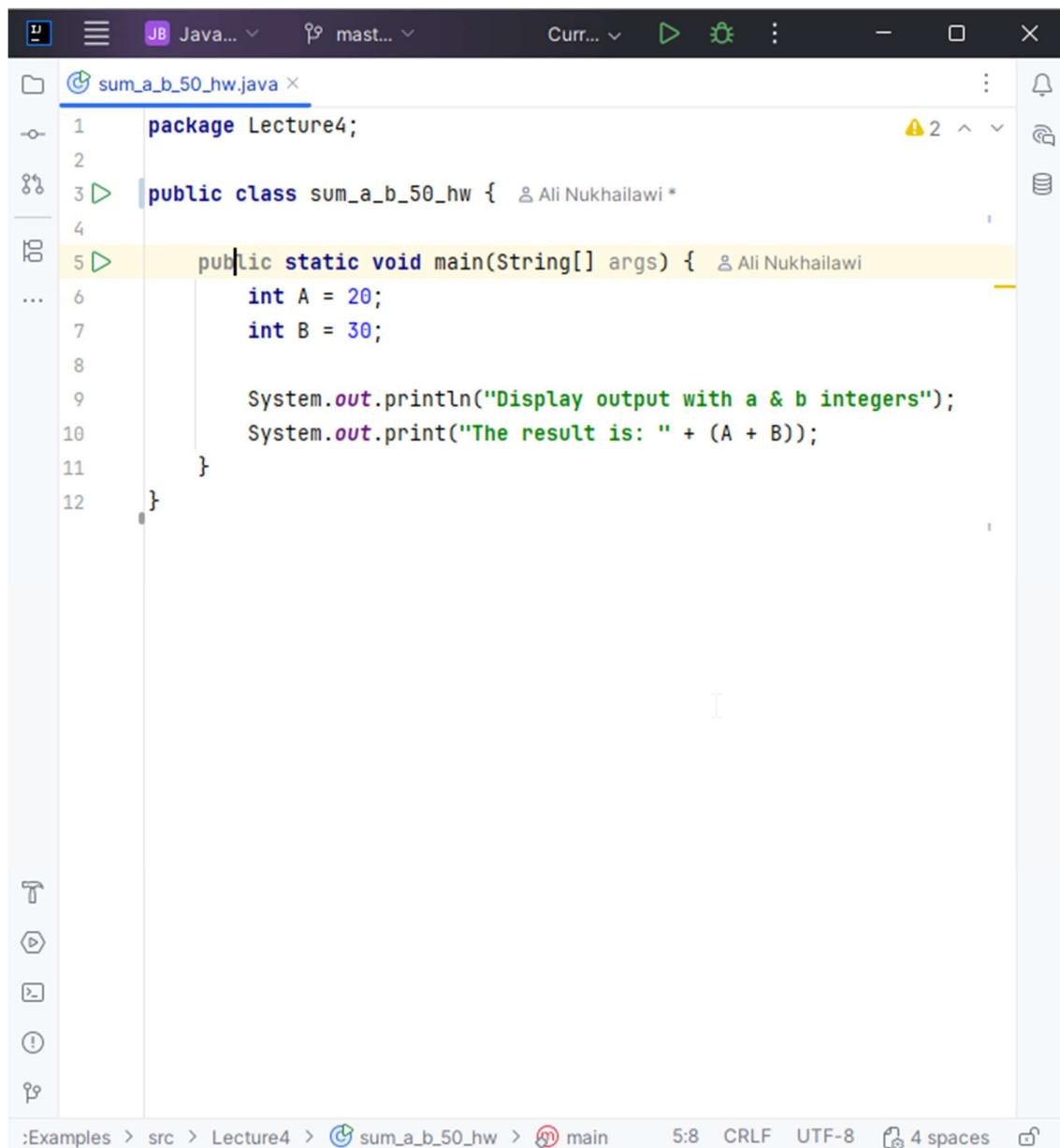
Homework

Use print() with code to get the following output

Int A=20;

Int B=30;

Output: The result is: 50



```
JB Java... mast... Curr... ▶ ⚡ ⌂ ⌂ X
sum_a_b_50_hw.java ×
1 package Lecture4;
2
3 public class sum_a_b_50_hw { Ali Nukhailawi *
4
5     public static void main(String[] args) { Ali Nukhailawi
6         int A = 20;
7         int B = 30;
8
9         System.out.println("Display output with a & b integers");
10        System.out.print("The result is: " + (A + B));
11    }
12 }
```

The code editor interface includes a toolbar at the top with icons for file operations, and a sidebar on the left with icons for text, navigation, and help. The bottom status bar shows the file path, encoding, and other settings.

Lecture 6

1. Write a program in Java to read four numbers from the user, then find the summation between them?

The screenshot shows a Java code editor with the following code:

```
1 package Lecture6;
2
3 import java.util.Scanner;
4
5 public class summation_four_numbers_hw { new *
6 ...
7     public static void main(String[] args) { new *
8         int number, sum = 0;
9         String msg, invalid_input_msg;
10        Scanner input = new Scanner(System.in);
11
12        msg = "Enter an integer value for number ";
13        invalid_input_msg = "Invalid input! Please enter an integer.";
14
15        for (int i = 1; i <= 4; i++) {
16            System.out.print(msg + i + ": ");
17
18            while (!input.hasNextInt()){
19                System.out.println(invalid_input_msg);
20                input.next(); // discard invalid input
21                System.out.print(msg + i + ": ");
22            }
23
24            number = input.nextInt();
25            sum += number;
26        }
27
28        System.out.println("The sum is: " + sum);
29        input.close();
30
31    }
32 }
```

The code is a Java program named `summation_four_numbers_hw.java` located in the `Lecture6` package. It prompts the user to enter four integer values and calculates their sum. The code uses a `Scanner` object to read input and a `while` loop to handle invalid input by discarding it and prompting again.

2. Write a program in Java to read four numbers from the user, then find the largest number between them?

The screenshot shows a Java code editor interface with the following details:

- Title Bar:** JB Java... and mast... are visible in the top left.
- Code Area:** The file `largest_four_numbers_hw.java` is open. The code implements a program to read four integers from the user and determine the largest one. It uses a Scanner for input and prints messages to the console.
- Toolbars and Icons:** Various icons for file operations (New, Open, Save, etc.) and project management are visible along the top and sides.
- Status Bar:** At the bottom, it shows the path JavaBasicExamples > src > Lecture6 > largest_four_n, along with the current time (20:10), encoding (CRLF), and file encoding (UTF-8). It also indicates a font size of 8pt and a reset to 13pt option.

```
1 package Lecture6;
2
3 import java.util.Scanner;
4
5 public class largest_four_numbers_hw {
6     public static void main(String[] args) {
7         Scanner input = new Scanner(System.in);
8         String msg, invalid_input_msg;
9         int number, largest_number;
10
11         msg = "Enter a value for number ";
12         invalid_input_msg = "Invalid input, Please enter an integer number.";
13
14         System.out.print(msg + 1 + ": ");
15
16         while (!input.hasNextInt()) {
17             System.out.println(invalid_input_msg);
18             input.next(); // discard wrong input
19             System.out.print(msg + 1 + ": ");
20         }
21         largest_number = input.nextInt();
22
23         for (int i = 2; i <= 4; i++) {
24             System.out.print(msg + i + ": ");
25
26             while (!input.hasNextInt()) {
27                 System.out.println(invalid_input_msg);
28                 input.next(); // discard wrong input
29                 System.out.print(msg + i + ": ");
30             }
31
32             number = input.nextInt();
33             if (number > largest_number)
34                 largest_number = number;
35         }
36
37         System.out.println("The largest number is " + largest_number);
38         input.close();
39     }
40 }
41 }
```

3. Write a program in Java to calculate the value of Y from the following equation?

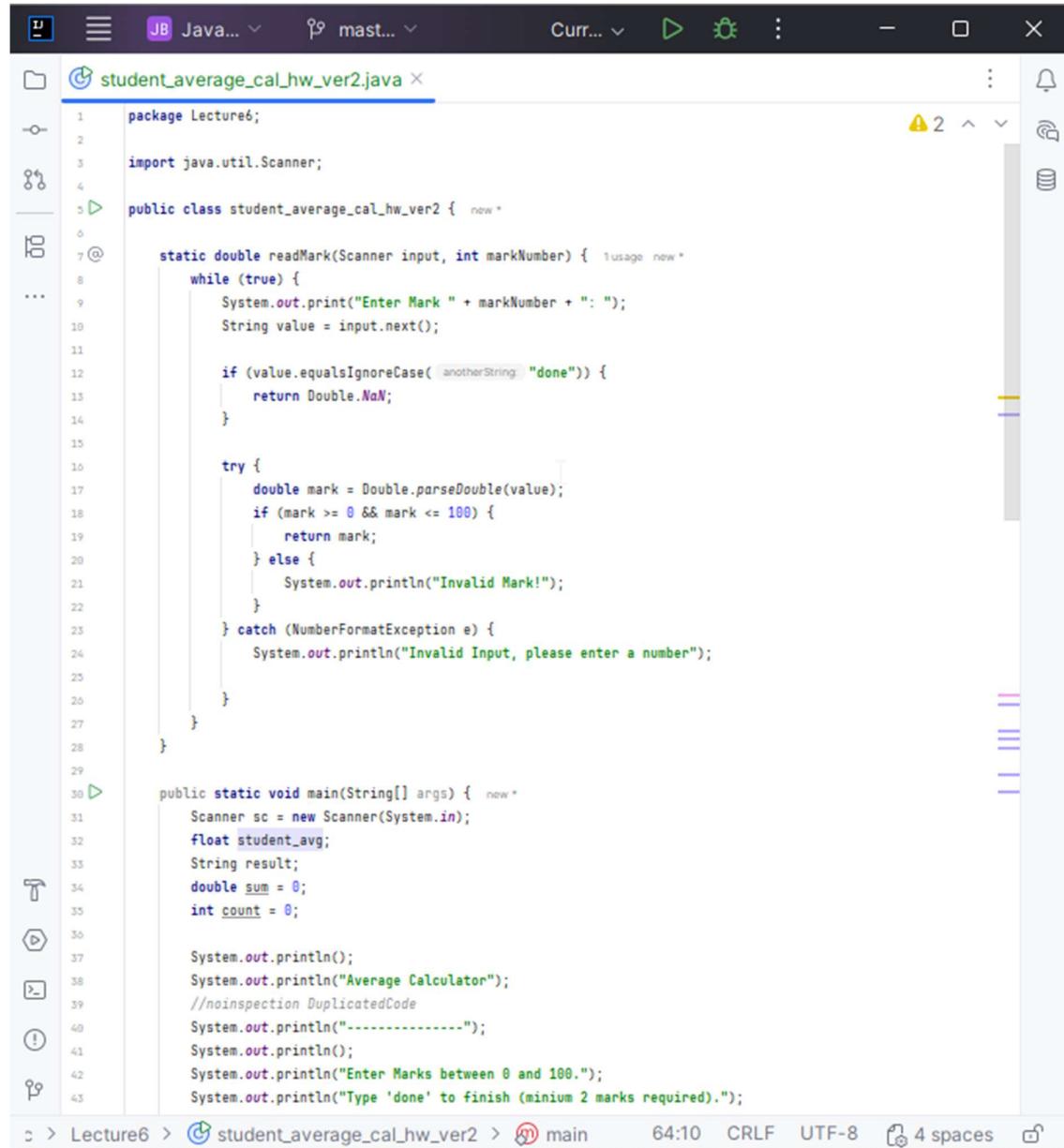
$$Y = 1/X^2 - 81$$

The screenshot shows a Java code editor window with the following details:

- Title Bar:** Shows "JB Java..." and "mast...".
- File Explorer:** Shows a file named "calculate_value_of_y_hw.java" under a "Lecture6" package.
- Code Editor:** Displays the Java code for calculating Y. The code includes imports for Scanner, defines a main method, reads input from System.in, calculates Y using the formula $Y = 1/(X^2) - 81$, and prints the result to System.out.
- Status Bar:** Shows the current line (29), character count (1), encoding (CRLF), file encoding (UTF-8), and code style (4 spaces).

```
1 package Lecture6;
2
3 import java.util.Scanner;
4
5 public class calculate_value_of_y_hw {
6     public static void main(String[] args) {
7         String program_name, input_msg, invalid_input_msg, result_msg;
8         float x, result;
9         Scanner input = new Scanner(System.in);
10        program_name = "Y=1/(X²-81)";
11        input_msg = "Enter a value for X: ";
12        invalid_input_msg = "Invalid input, Please try again.";
13
14        System.out.println(program_name);
15        System.out.println();
16
17        System.out.print(input_msg);
18
19        while (!input.hasNextFloat()) {
20            System.out.println(invalid_input_msg);
21            input.next(); // discard wrong input
22            System.out.print(input_msg);
23        }
24        x = input.nextFloat();
25
26        result = 1 / ((x * x) - 81);
27
28        result_msg = "The Value of Y is: " + result;
29        System.out.println(result_msg);
30
31    }
32}
```

4. Write a program to print the student average as follows:
- average >100 and average < 0 print “The average is out of range”
 - average >=0 and average < 50 print “The average is Fail”
 - average >=50 and average <= 59 print “The average is Accepted”
 - average >=60 and average <= 69 print “The average is Medium”
 - average >=70 and average <= 79 print “The average is Good”
 - average >=80 and average <= 89 print “The average is Very Good”
 - average >=90 and average <= 100 print “The average is Excellent”



The screenshot shows a Java code editor interface with the following details:

- Title Bar:** JB Java... mast... Curr... ▶ ⚡ ⌂
- File Explorer:** Shows a file named "student_average_cal_hw_ver2.java" under a "Lecture6" folder.
- Code Editor:**

```

1 package Lecture6;
2
3 import java.util.Scanner;
4
5 public class student_average_cal_hw_ver2 {
6
7     static double readMark(Scanner input, int markNumber) {    new *
8         while (true) {
9             System.out.print("Enter Mark " + markNumber + ": ");
10            String value = input.next();
11
12            if (value.equalsIgnoreCase( anotherString: "done")) {
13                return Double.NaN;
14            }
15
16            try {
17                double mark = Double.parseDouble(value);
18                if (mark >= 0 && mark <= 100) {
19                    return mark;
20                } else {
21                    System.out.println("Invalid Mark!");
22                }
23            } catch (NumberFormatException e) {
24                System.out.println("Invalid Input, please enter a number");
25            }
26        }
27    }
28
29
30    public static void main(String[] args) {    new *
31        Scanner sc = new Scanner(System.in);
32        float student_avg;
33        String result;
34        double sum = 0;
35        int count = 0;
36
37        System.out.println();
38        System.out.println("Average Calculator");
39        //noinspection DuplicatedCode
40        System.out.println("-----");
41        System.out.println();
42        System.out.println("Enter Marks between 0 and 100.");
43        System.out.println("Type 'done' to finish (minimum 2 marks required).");

```
- Status Bar:** Shows the current file path: "Lecture6 > student_average_cal_hw_ver2 > main". It also displays file statistics: 64:10, CRLF, UTF-8, 4 spaces, and a copy icon.

(pic 1)

```
student_average_cal_hw_ver2.java
public class student_average_cal_hw_ver2 {
    public static void main(String[] args) {
        System.out.println("Type 'done' to finish (minimum 2 marks required).");
        System.out.println();

        //noinspection DuplicatedCode
        while (true) {
            double mark = readMark(sc, markNumber: count + 1);

            // done entered
            if (Double.isNaN(mark)) {
                if (count >= 2) {
                    break;
                } else {
                    System.out.println("You must enter at least two marks before finishing.");
                    continue;
                }
            }

            sum += mark;
            count++;
        }

        student_avg = (float) (sum / count);
        result = student_average_result(student_avg);
        System.out.println();

        if (student_avg >= 45 && student_avg < 50) {
            System.out.println("Your Average now is: " + student_avg);
            float carve_marks = 50 - student_avg;

            System.out.println("You got a " + carve_marks + " carve marks" + "\n");
            System.out.println("Your Average now is: " + (student_avg + carve_marks));
        } else {
            System.out.println("Your Average is: " + student_avg);
            System.out.println("The Result is: " + result);
        }
        sc.close();
    }

    static String student_average_result(float student_avg) { usage new
}
```

(pic 2)

```
student_average_cal_hw_ver2.java
public class student_average_cal_hw_ver2 {
    public static void main(String[] args) {
        ...
        System.out.println("You got a " + carve_marks + " carve marks" + "\n");
        System.out.println("Your Average now is: " + (student_avg + carve_marks));
    } else {
        System.out.println("Your Average is: " + student_avg);
        System.out.println("The Result is: " + result);
    }
    sc.close();
}

static String student_average_result(float student_avg) {
    if (student_avg > 100 || student_avg < 0)
        return "Out of Range";
    else if (student_avg > 0 && student_avg < 45)
        return "Fail";
    else if (student_avg > 45 && student_avg < 50)
        return "Passed by car";
    else if (student_avg >= 50 && student_avg < 60)
        return "Accepted";
    else if (student_avg >= 60 && student_avg < 70)
        return "Medium";
    else if (student_avg >= 70 && student_avg < 80)
        return "Good";
    else if (student_avg >= 80 && student_avg < 90)
        return "Very Good";
    else if (student_avg >= 90 && student_avg < 100)
        return "Excellent";
    else
        return "Invalid Input";
}
}
```

(pic 3)

Lecture 7

- 1. Write a program to print the student average as follows: using switch case statement:

```
average >100 and average < 0 print "The average is out of range"  
average >=0 and average < 50 print "The average is Fail"  
average >=50 and average <= 59 print "The average is Accepted"  
average >=60 and average <= 69 print "The average is Medium"  
average >=70 and average <= 79 print "The average is Good"  
average >=80 and average <= 89 print "The average is Very Good"  
average >=90 and average <= 100 print "The average is Excellent"
```

The screenshot shows a Java code editor with the following code:

```
package Lecture7;  
import java.util.Scanner;  
  
public class StudentAverageSwitchHW { new *  
    public static void main(String[] args) { new *  
        Scanner input = new Scanner(System.in);  
        int student_average;  
        String result = "";  
        String resultMsg = "";  
  
        System.out.print("Enter Student Average: ");  
        student_average = input.nextInt();  
        input.close();  
  
        if (student_average < 0 || student_average > 100)  
            result = "-";  
        else if (student_average < 50)  
            result = "F";  
        else if (student_average < 60)  
            result = "D";  
        else if (student_average < 70)  
            result = "C";  
        else if (student_average < 80)  
            result = "B";  
        else if (student_average < 90)  
            result = "A";  
        else result = "A+";  
  
        switch (result) {  
            case "-":  
                resultMsg = "Out of Range";  
            ...  
        }  
    }  
}
```

The code implements a switch statement to determine the grade based on the student's average. It handles cases for failing grades, passing grades, and excellent grades, along with an 'Out of Range' case.

(pic 1)

```
5     public class StudentAverageSwitchHW { new *
6         public static void main(String[] args) { new *
7             ...
8             break;
9             case "F":
10                 resultMsg = "Fail";
11                 break;
12             case "D":
13                 resultMsg = "Accepted";
14                 break;
15             case "C":
16                 resultMsg = "Medium";
17                 break;
18             case "B":
19                 resultMsg = "Good";
20                 break;
21             case "A":
22                 resultMsg = "Very Good";
23                 break;
24             case "A+":
25                 resultMsg = "Excellent";
26                 break;
27             default:
28                 resultMsg = "Incorrect";
29             }
30
31
32             System.out.println("The Average is " + resultMsg);
33         }
34     }
35 }
```

cExamples > src > Lecture7 > StudentAverageSwitchHW 59:2 CRLF UTF-8 4 spaces

(pic 2)

2. Write a program in Java to read number a month of the year, then print the name of the month?

The screenshot shows a Java code editor with the file `NameOfMonthSwitchHW.java` open. The code implements a switch statement to map month numbers to their names. The editor interface includes a toolbar at the top, a left sidebar with icons for file operations, and a bottom status bar showing the file path, line count, encoding, and character width.

```
1 package Lecture7;
2
3 import java.util.Scanner;
4
5 public class NameOfMonthSwitchHW {
6     public static void main(String[] args) {
7
8         Scanner input = new Scanner(System.in);
9         System.out.print("Enter Month number in the year: ");
10        int month = input.nextInt();
11        input.close();
12
13        String monthName = switch (month) {
14            case 1 -> "January";
15            case 2 -> "February";
16            case 3 -> "March";
17            case 4 -> "April";
18            case 5 -> "May";
19            case 6 -> "June";
20            case 7 -> "July";
21            case 8 -> "August";
22            case 9 -> "September";
23            case 10 -> "October";
24            case 11 -> "November";
25            case 12 -> "December";
26            default -> "Invalid";
27        };
28
29        System.out.println("The name of the month is: " + monthName);
30    }
31 }
32 }
```