



Strathmore
UNIVERSITY

**STRATHMORE INSTITUTE OF MANAGEMENT SCIENCES
DIPLOMA IN BUSINESS AND INFORMATION TECHNOLOGY**

**DBT 1102: INTRODUCTION TO PROGRAMMING
ASSIGNMENT I: Java Control Structures**

Instructions:

- Answer all questions.
- Your work must be **submitted in PDF format** and you must include screenshots of your code in action.
- You must include the **link to your work on GitHub**. This accounts for 5% of the marks for this assignment.
- The purpose of this assignment is to help you understand and apply the six main control structures in Java. They are:
 - a. Block
 - b. if statement
 - c. switch statement
 - d. while loop
 - e. do...while loop
 - f. for loop
- Implement each control structure in a separate Java program.

Block Statement (10 marks)

1. Write a Java program that:
 - Declares two integer variables (one of them is your student number) inside a block {}
 - Calculates their sum.
 - Prints the result.
 - Demonstrate that the variables are only accessible inside the block.

If Statement (10 marks)

1. Using if, else if, and else, write a Java program that gets the height from a user in decimal format (use scanner for user input).
 - If the height is 6 feet and above, display "Tall"
 - If the height is between 5'7" and 6 feet, display "Average"
 - Otherwise, display "Short"

Switch Statement (15 marks)

1. Using a switch statement, Write a Java program that prompts the user to enter a number between 1 and 7, then display the corresponding day of the week.
 - **E.g.** 1 - Monday, 2 - Tuesday, 7 - Sunday.

Include a **default** case for invalid input

While Loop (5 marks)

1. Using the while loop and a counter variable, write a Java program that prompts the user to enter a number, then print numbers from 1 up to that number.

Do...While Loop (15 marks)

1. Using the Use do...while loop (ensure the loop executes at least once), Write a Java program that:
 - Repeatedly asks the user to enter a student number and password
 - Stops only when the correct password is entered
 - Displays “Access Granted” when correct
 - This means you must store the student number and its corresponding passwords in variables before the execution of the **do..while** loop

For Loop (15 marks)

1. Using the for loop, write a Java program that prompts the user to enter a number, then:
 - Displays that number up to 0, then reduces the number by one and does the same thing.
 - For instance if the number entered was 4:
43210
3210
210
210
10
0

Inclusion of GitHub link (5 marks)

Ensure to include your student number in your document.