Compiler Design (Midterm Lab 1)

Task 1:

Write a C++ program that takes a string as input (a candidate variable name) and prints whether it is **Valid** or **Invalid** using these rules:

1. Invalid if it starts with a digit
2. Invalid if it matches a reserved keyword, check against **any 6 to 8 common C++ keywords**
3. Invalid if it contains special characters other than underscore _ or dollar sign $
   You may use string.at() to inspect characters.

Sample Input:
1var

Expected Output:
Invalid variable name

Task 2:

Find the **average value** of the elements of an array. You do **not** need to take the array as input, define it in the program.

Sample (Fixed Array in Code):
int a[] = {10, 20, 30, 40, 50};

Expected Output:
Average value = 30

Task 3:

Using an array defined in the program (no user input required), find and print the **minimum** and **maximum** values.

Sample (Fixed Array in Code):
int a[] = {7, -2, 15, 4, 9};

Expected Output:
Minimum = -2
Maximum = 15

Task 4:

Take two strings as input, first name and last name, then concatenate them to print the full name with a space between them.

Sample Input:
First name: Shakila
Last name: Rahman

Expected Output:
Full name = Shakila Rahman

Task 5:

First take the number of students n. For each student, take **name** and **marks**, write them to a file, then read the file and display the stored content.

Sample Input:
Number of students: 2
Student 1 name: Alice
Student 1 marks: 85
Student 2 name: Bob
Student 2 marks: 92

Expected Output:
Data read from file:
Alice 85
Bob 92