

Unit 1: Programming Questions on Data Types, Variables, Operators, Arrays, and Strings

Questions

1. Write a program to declare variables of different data types (int, double, char, and String) and print their values on the console. Use both primitive and reference data types.
2. Write a program that reads two numbers from the user and performs the following arithmetic operations: addition, subtraction, multiplication, and division. Display the results for each operation.
3. Write a program to demonstrate implicit and explicit type conversion (casting). Convert a double to an integer, and an integer to a double, and display the results.
4. Write a program that takes two integers as input and uses comparison operators (`==`, `!=`, `<`, `<=`, `>`, `>=`) to compare the numbers. Display the results of the comparisons.
5. Write a program that initializes an array of 5 integers and displays the sum of all the elements in the array.
6. Write a program to perform matrix addition using two 2D arrays. Display the result of the matrix addition.
7. Implement a program that demonstrates jagged arrays by creating a 2D array with different lengths for each row. Display the elements of the jagged array.
8. Write a program that searches for a specific number in an array and returns its index. If the number is not found, display a message indicating so.
9. Write a program that reads a string from the user and counts the number of vowels and consonants in the string.
10. Write a program that takes a string as input and prints the string in reverse order without using any built-in reverse methods.
11. Write a program that concatenates two strings provided by the user and prints the resulting string.
12. Write a program that compares two strings entered by the user and checks if they are equal using both `equals()` and `==`.

13. Write a program that sorts an array of integers in ascending order using a sorting algorithm of your choice (e.g., bubble sort, insertion sort, or selection sort).
14. Write a program that calculates the sum and average of the numbers in an array.
15. Write a program that uses nested loops to print a pattern of asterisks (e.g., a triangle or pyramid).
16. Write a program that takes a 2D array as input and prints its transpose.