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**Programming Fundamentals - Assignment 01**

**Section 1:  
1.** Write a program that prints "Hello, World!" to the console.

**2.** Write a program that asks the user for their name and greets them with "Hello, [name]".

**3.** Write a program that takes two numbers as input and prints their sum.

**4.** Write a program that takes a number as input and prints its square.

**5.** Write a program that prints all even numbers from 1 to 100.

**Section 2:  
6.** Write a program that asks the user for a number n and prints the sum of the numbers 1 to n.  
**7.** Write a program that asks the user for a number n and prints a multiplication table for that number up to 12.  
**8.** Write a program that prints all prime numbers up to n (where n is user input).  
**9.** Write a program that computes the factorial of a number (n!).  
**10.** Write a program that prints the Fibonacci sequence up to n terms (where n is user input).

**Section 3:  
11.** Write a program that searches for number n in an array of 5 (where n is user input).

**12.** Write a program that checks if a string is a palindrome.

**13.** Write a program that finds the largest and smallest number in an unsorted array of integers.

**14.** Write a program that prints a right angle triangle using the "\*" character, with the height based on user input. (using loops and following is only sample input)  
  
\*  
\*\*  
\*\*\*  
\*\*\*\*  
\*\*\*\*\*

**15.** Write a program that prints the following pattern up to n rows (where n is user input).  
  
 \*  
 \*\*\*   
 \*\*\*\*\*  
 \*\*\*\*\*\*\*  
 \*\*\*\*\*\*\*\*\*  
  
  
**Section 4:  
16.** Write a program that takes a string as input and outputs the reverse of that string. For example, if the input is "hello," the output should be "olleh."   
**17.** Write a program that sorts an array. (take input as random numbers)  
**18.** Write a program that checks if a given number is a perfect number.  
(sum of all divisors excluding itself should be equal to that number e.g.; 1 + 2 + 3 = 6)  
**19.** Write a program that prints the following pattern up to n rows (where n is user input).  
  
1  
12  
123  
1234  
...  
123...n

**20.** Write a program that finds the longest common subsequence of two given strings. A subsequence is a sequence that appears in the same relative order but not necessarily contiguous. For example, for the input strings "ABCDGH" and "AEDFHR," the longest common subsequence is "ADH."

**Evaluation Criteria:**

* **Correctness:** Does the program solve the problem as described? Does it handle edge cases properly?
* **Code Quality:** Is the code well-structured and readable? Are variables and functions named appropriately?
* **Efficiency:** Is the code unnecessarily complex or slow? Are there simpler or faster ways to solve the problem?
* **Comments:** Are there comments explaining complex pieces of code? Is the purpose of each function and variable explained?