Problem Solving using Conditional Statements, Functions, and Loops

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Question 1

Take three numbers from the user and print the largest of them.

Explanation:
Compare between 2 variables and store the higher in max and then compare that with the third to find the actual max.

input
1, 2, 3

output
3

Solution
https://pastebin.com/fDtWshkf

Question 2

Jot down a program that asks the user to provide a single character. Print Vowel or Consonant, depending upon the users' input. If the input is not a letter (from a and z or A and Z) or is a string of length > 1, print an error message.

Explanation:
- Take input of a character.
- Check if it is a,e,i,o,u or not. Then print vowel.
- Else print consonant

input   output
'a'   vowel

Solution
https://pastebin.com/dsFQqan6

Question 3

A school has the following rules for the grading system:

A. Below 25 - F

B. 25 to 45 - E

C. 45 to 50 - D

D. 50 to 60 - C

E. 60 to 80 - B

F. Above 80 - A

Ask the user to enter marks and print the corresponding grade.

input   output
85   A

Explanation:

Take marks as input and check the range of marks. Based on the range of the marks assign it a grade as given in the question.

Solution

https://pastebin.com/mPnJG7Rq

Question 4

Create a program that accepts a number and check if it's Armstrong or not. A number is Armstrong, if the sum of cubes of digits is the same as the number itself.

Sample input:
153
Output:
153 is Armstrong number

Explanation:
Extract each digit of the number and cube it and add it the sum. The final sum should be same as the number.
153 = 1^3 + 5^3 + 3^3.

Solution
https://pastebin.com/JHZUTeNm

Question 5

Problem Statement: Given an integer num, check if it is a prime number.

● A prime number is a number that is divisible by itself and 1.

● Probable Solution-1: Counting the number of factors.

● If the number of factors is exactly 2, then the number has to be a prime number.

Code is shared below

input - 5

output - Number is prime

```
function f1(n) {
    let isPrime = true;
    for(let i = 2; i < n; i++) {
        if(n % i == 0) {
            isPrime = false;
            break;
        }
    }
    if(isPrime === true)
        console.log("Number is prime")
    else
        console.log("Number is NOT prime")
}
```

Question 6

Palindrome Check

- Problem Statement: Check if the given integer N is a palindrome.
- Palindromes are numbers that read the same from left to right as from right to left.
- Examples - 121, 11, 3 etc.
- Probable Solution-1: By manually reversing the number.
  - Code for reference - https://p.ip.fi/mIg

Question 7

1

2 3

4 5 6

7 8 9 10

...

- Problem Statement: Print the above pyramid pattern for *N* rows.
- To print the pyramid.
  - We need a loop to control the number of rows.
  - Inside each row, we need a loop to control the number of columns.
  - Hence, we require a nested loop structure.
  - Also, note that the *ith* row contains *i* columns!
- Code for reference - https://p.ip.fi/uJt0

Question 8

1

1 2

1 2 3

1 2 3 4

…

- Problem Statement: Print the above pyramid pattern for *N* rows.
- To print the pyramid.
  - We need a loop to control the number of rows.
  - Inside each row, we need a loop to control the number of columns.
  - Hence, we require a nested loop structure.
  - Also, note that the *ith* row contains *i* columns! The elements to be printed are same as the value of the loop j in every iteration of ith loop

```javascript
function pyramid(N) {
    let num = 1;
    for(let i = 1; i <= N;
i++) {
        let output = '';
        for(let j = 1; j <= i;
j++) {
            output = output + '
' + j;
        }
    console.log(output);
    }
}
pyramid(4);
```

Assignment

○ 1. Print the Fibonacci series up to 100.
The numbers in the series are 0,1,1,2,3,5,8,13,21,34,... The specialty of the series is that every number is the sum of the previous 2 numbers.

○ 2. Print all prime numbers within 100 to 500.

THANK YOU