Cavalier Institute - https://cavalierinstitutions.com

Date	Oct-08-2024	Assignment	1

Topic : C Programming - Basics

Question: Write a program that prints "Hello, World!" on the screen.

Solution:

```c
#include <stdio.h>

int main() {
    printf("Hello, World!\n");
    return 0;
}
```

Question: Write a program to take two integers from the user and display their sum.

Solution:

```c
#include <stdio.h>

int main() {
    int num1, num2, sum;
    printf("Enter two integers: ");
    scanf("%d %d", &num1, &num2);
    sum = num1 + num2;
    printf("Sum: %d\n", sum);
```

```c
    return 0;
}
```

Question: Write a program that checks whether a given integer is even or odd.

Solution:

```c
#include <stdio.h>

int main() {
    int number;
    printf("Enter an integer: ");
    scanf("%d", &number);

    if (number % 2 == 0) {
        printf("%d is even.\n", number);
    } else {
        printf("%d is odd.\n", number);
    }
    return 0;
}
```

Question: Write a program that finds the largest of three numbers entered by the user.

Solution:

```c
#include <stdio.h>

int main() {
    int num1, num2, num3;

    printf("Enter three numbers: ");
    scanf("%d %d %d", &num1, &num2, &num3);

    if (num1 >= num2 && num1 >= num3) {
        printf("The largest number is: %d\n", num1);
    } else if (num2 >= num1 && num2 >= num3) {
        printf("The largest number is: %d\n", num2);
    } else {
```

```c
        printf("The largest number is: %d\n", num3);
    }
    return 0;
}
```

Question: Write a program that calculates the factorial of a number.

Solution:

```c
#include <stdio.h>

int main() {
    int n, i;
    unsigned long long factorial = 1;

    printf("Enter an integer: ");
    scanf("%d", &n);

    if (n < 0) {
        printf("Error! Factorial of a negative number doesn't
exist.\n");
    } else {
        for (i = 1; i <= n; ++i) {
            factorial *= i;
        }
        printf("Factorial of %d = %llu\n", n, factorial);
    }

    return 0;
}
```

Assignment Questions

Level 1

1. Write a program to check if a given number is prime using a loop.
2. Write a program to print numbers from 1 to 100 using a loop.
3. Write a program to find the sum of the first N natural numbers using a loop.
4. Write a program to calculate the factorial of a given number using a loop.

5. Write a program to find the sum of all odd numbers between 1 and N using a loop.
6. Write a program to count how many numbers between 1 and N are even and how many are odd.
7. Write a program to take N numbers as input and find the largest number using a loop.
8. Write a program to reverse a number entered by the user using a loop.
9. Write a program to calculate (a raised to the power of b) for N numbers
10. Write a program to check if a given number is prime using a loop.
11. Write a program to calculate the sum of the squares of the first N natural numbers.
12. Write a program to calculate the sum of the series:
    a. $1+1/2+1/3+\cdots+1/N$
13. Write a program to take N numbers as input and calculate their average using a loop.

Level 2

1. Write a program to print the multiplication table of a given number using a loop.
2. Write a program to count the number of digits in a given number using a loop.
3. Write a program to print all prime numbers between two given numbers using a loop.
4. Write a program to calculate the sum of the digits of a number using a loop.
5. Write a program to take N numbers as input and calculate their product using a loop.

END