LAB 5

Subject: programming fundamental

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Q1: Write a program to print your name 20 times on screen.

```c
#include <stdio.h>

int main()
{
    int count = 1;
    while (count <= 20)
    {
        printf("Kashif Khan \n");
        count++;
    }

    return 0;
}
```

Q2: Write a program to print numbers from 1 to 10 .

```c
#include <stdio.h>

int main(){
    int count = 1;
    printf("Number from 1 to 10 \n");
    while (count <= 10)
    {
        printf("%d \n", count);
        count++;
    }

    return 0;
}
```

Q3: Write a program to print odd numbers from 1 to 20.

```c
#include <stdio.h>

int main(){

    int count = 1;
    printf("Odd Number Between 1 to 20 is \n");
    while (count <= 20)
    {
       if(count % 2)
         printf("%d\n",count);

        count++;
    }
```

```
}
```

Q4: Write a program to print even numbers from 50 to 70.

```
#include <stdio.h>

int main(){

    int count = 50;
    printf("Even Number Between 50 to 70 is \n");
    while (count <= 70)
    {
       if(count % 2 == 0)
         printf("%d\n",count);

        count++;
    }

}
```

Q5: Ask user to enter 10 numbers. Print the sum and average of the entered numbers.

```
#include <stdio.h>

int main()
{
    float number,sum = 0, average;
    int count = 1;
    while (count <= 10)
    {
        printf("Enter the Number%d: ", count);
        scanf("%f", &number);
        sum += number;
        ++count;
    }

    printf("The Sum of the number is %.2f \n", sum);
    average = sum/10.0;
    printf("The Average of the number is %.3f \n",average);

}
```

Q6: Enter a number and display its divisors. (e.g., divisors of 15 are: 1,3,5,15)

```
#include <stdio.h>

int main()
{
    int number;
```

```
    printf("Please Enter the Number you want to find all Divisor: ");
    scanf("%d", &number);
    int count = 1;
    while (count <= number/2)
    {
        if(number % count == 0)
            printf("%d is divisor of %d \n", count, number);
        count++;
    }
    printf("%d is divisor of %d \n", number, number);

}
```

Q7: Enter a number and show its factors upto a specific number. (factors of 3 are : 3,6,9,12 ….)

```
#include <stdio.h>

int main()
{
    int number;
    printf("Please Enter the Number to Factor : ");
    scanf("%d", &number);
    int limit;
    printf("Please Enter the Limit upto which you want to find Factor : ");
    scanf("%d", &limit);
    int count = 1;
    printf("Factor of %d upto %d is \n", number, limit);
    while (count <= limit)
    {
        printf("%d, ", number * count);
        count++;
    }
}
```

Q8: Write a program to calculate and print the sum of all multiples of 7 from 1 to 100.

```
#include <stdio.h>

int main()
{
    int sum=0, count = 1;

    while (count <= 100)
    {
        if(count % 7 == 0)
            sum += count;
        count++;
    }
```

```
    printf("The sum of all multiples of 7 from 1 to 100 is = %d ",sum);

}
```

Q9: Two numbers are entered through the keyboard. Write a program to find the value of one number raised to the power of another.

```
#include <stdio.h>

int main()
{
    int power, base;
    printf("Enter the base: ");
    scanf("%d", &base);
    printf("Enter the power: ");
    scanf("%d", &power);
    int result = 1;
    int count = 1;
    while (count <= power)
    {
        result = result * base;
        count++;
    }
    printf("%d to power %d is %d",base ,power, result);

}
```

Q10: Write a program to enter a value and calculate its factorial. (e.g., 5! = 5*4*3*2*1)

```
#include <stdio.h>

int main()
{
    int number;
    printf("Enter the number: ");
    scanf("%d", &number);
    int factorial = 1;
    int count = 1;
    while (count <= number)
    {
        factorial = factorial * count;
        count++;
    }
    printf("Factorial of %d is %d", number, factorial);

}
```

Q11: Enter a number and tell whether it is prime or not.

```c
#include <stdio.h>

int main()
{
    int number;
    printf("Enter the number: ");
    scanf("%d", &number);
    int divisorCount = 0;
    int count = 1;
    while (count <= number)
    {
        if (number % count == 0)
            divisorCount++;

        count++;
    }
    if(divisorCount == 2)
        printf("%d is prime Number", number);
    else
        printf("%d is not prime Number", number);

}
```

Q12: Write a program to print Fibonacci series (1 1 2 3 5 7 12 19 31 ……)

```c
#include <stdio.h>

int main()
{
    int fibonacciUpto, firstTerm = 0, secondTerm = 1, nextTerm;
    printf("Enter the Limit of The Sequence you want to Print Fibonacci series: ");
    scanf("%d", &fibonacciUpto);
    int count = 0;

    while (count <= fibonacciUpto)
    {
        if(count == 0)
            printf("%d\t", firstTerm);
        if(count == 1)
            printf("%d\t", secondTerm);

        nextTerm = firstTerm + secondTerm;
        firstTerm = secondTerm;
        secondTerm = nextTerm;
        printf("%d\t", nextTerm);
```

```
        count++;
    }

}
```

Q13: Enter a 3 digit number and find whether its Armstrong number or not? If sum of cubes of digits of three-digit number is equal to the number itself, then the number is called an Armstrong number. For example, 153 = (1 * 1 * 1) + (5 * 5 * 5) + (3 * 3 * 3).

```
#include <stdio.h>
#include <math.h>

int main()
{
    int number, armstrongNumber= 0;
    printf("Enter the Number: ");
    scanf("%d", &number);

    // take two temp vairable to sotre the number
    int tempNum1, tempNum2;
    tempNum1 = number;
    tempNum2 = number;

    // for count the digit in the Number
    int countDigit = 0;
    while(tempNum1 != 0)
    {
        tempNum1 /=10;
        countDigit++;
    }

    printf("Number of Digit: %d \n", countDigit);

    //for Armstrong number
    int remainder;
    while(tempNum2 != 0){
        remainder = tempNum2 % 10;
        armstrongNumber +=  pow(remainder, countDigit);
        tempNum2 /= 10;
    }

    // printf("Armstrong Number: %d\n\n" , armstrongNumber);

    // check the number is Armstrong or not
    if(armstrongNumber == number)
        printf("%d is Armstrong Number", number);
    else
        printf("%d is not Armstrong Number", number);
```

```
}
```

Q14: Write a program to print out all Armstrong numbers between 100 and 500.

```c
#include <stdio.h>
#include <math.h>

int main()
{
    int firstIndex, lastIndex;
    printf("Enter the First Index: ");
    scanf("%d", &firstIndex);
    printf("Enter the Last Index: ");
    scanf("%d", &lastIndex);

    while (firstIndex <= lastIndex)
    {
        int number = firstIndex;
        int armstrongNumber = 0;

        // take two temp vairable to sotre the number
        int tempNum1, tempNum2;
        tempNum1 = number;
        tempNum2 = number;
        // for count the digit in the Number
        int countDigit = 0;
        while (tempNum1 != 0)
        {
            tempNum1 /= 10;
            countDigit++;
        }
        // for Armstrong number
        int remainder;
        while (tempNum2 != 0)
        {
            remainder = tempNum2 % 10;
            armstrongNumber += pow(remainder, countDigit);
            tempNum2 /= 10;
        }
        // check the number is Armstrong or not
        if (armstrongNumber == number)
            printf("%d is Armstrong Number \n", number);

        firstIndex++;
    }
}
```

Q15: Write a program in C to read a number and display in the word.

```c
#include <stdio.h>

int main()
{
    int number;
    printf("Enter the Number: ");
    scanf("%d", &number);
    int tempNum = number;

    // for reverse the number
    number = 0;
    while (tempNum != 0)
    {
        int remainder = tempNum % 10;
        number = number * 10 + remainder;
        tempNum /= 10;
    }

    // for print the number in word
    while (number != 0)
    {
        int remainder = number % 10;
        switch (remainder)
        {
        case 1:
            printf("One ");
            break;
        case 2:
            printf("Two ");
            break;
        case 3:
            printf("Three ");
            break;
        case 4:
            printf("Four ");
            break;
        case 5:
            printf("Five ");
            break;
        case 6:
            printf("Six ");
            break;
        case 7:
            printf("Seven ");
            break;
        case 8:
            printf("Eight ");
            break;
```

```
        case 9:
            printf("Nine ");
            break;
        case 0:
            printf("Zero ");
            break;
        }
        number /= 10;
    }
}
```

Q16: Write a program to enter an expression and display its result when = is entered. (e.g., 2 + 3 + 8 – 3 * 5 -2 + 7 =)

```
#include <stdio.h>

int main()
{

    char expression[200];
    int count = 0, num, result;
    char op;

    printf("Enter an arithmetic expression (e.g., 2 + 3 + 8 - 3 * 5 - 2 + 7 = ): ");

    // Read the expression into the char array
    while ((expression[count] = getchar()) != '=')
        count++;

    // Initialize variables
    count = 0; // reset the count to reuse
    num = 0;
    result = 0;
    op = '+';

    // Evaluate the expression
    while (expression[count] != '=')
    {
        if (expression[count] >= '0' && expression[count] <= '9')
            num = num * 10 + (expression[count] - '0');

        else if (expression[count] == '+' || expression[count] == '-' || expression[count] ==
'*' || expression[count] == '/')
        {
            switch (op)
            {
            case '+':
                result += num;
                break;
```

```
            case '-':
                result -= num;
                break;
            case '*':
                result *= num;
                break;
            case '/':
                result /= num;
                break;
            }

            num = 0;
            op = expression[count];
        }
        count++;
    }

    // Handle the last operand and operator

    switch (op)
    {
    case '+':
        result += num;
        break;
    case '-':
        result -= num;
        break;
    case '*':
        result *= num;
        break;
    case '/':
        result /= num;
        break;
    }

    // Display the result
    printf("Result: %d\n", result);

    return 0;
}
```