Green University of Bangladesh
Department of Computer Science and Engineering(CSE)

Faculty of Sciences and Engineering

Semester: (Summer, Year:2022), B.Sc. in CSE (Day)

LAB REPORT NO :07

Course Title: Structured Programming Lab

Course Code: CSE 104 Section: DE

Student Details

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Submission Date : 11-Sep-22

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Lab Report Status

Marks: …… **Signature:.....**

Comments:..... **Date:.....**

Problem 01:

Write a C Program to convert a decimal number to an equivalent binary number using function.

Code:

```c
#include <stdio.h>
long decToBin(int decimalnumber)
{
    long binarynumber = 0;
    int rem, temp = 1;
    while (decimalnumber!=0)
    {
        rem = decimalnumber%2;
        decimalnumber = decimalnumber / 2;
        binarynumber = binarynumber + rem*temp;
        temp = temp * 10;
    }
    return binarynumber;
}
int main()
{
    int decimalnumber;
    printf("Enter a Decimal Number to convert into Binary: ");
    scanf("%d", &decimalnumber);
    printf("Equivalent Binary Number is: %ld", decToBin(decimalnumber));
    return 0;
}
```

Output:

```
Enter a Decimal Number to convert into Binary: 15
Equivalent Binary Number is: 1111
Process returned 0 (0x0)   execution time : 1.037 s
Press any key to continue.
```

```
Enter a Decimal Number to convert into Binary: 7
Equivalent Binary Number is: 111
Process returned 0 (0x0)   execution time : 1.496 s
Press any key to continue.
```

Problem 02:

Write a C program to create menu driven calculator that performs basic arithmetic operations (add, subtract, multiply and divide) using functions.

Code:

```c
#include <stdio.h>
void main() {
    int num1,num2,op;
    printf("Enter the first integer number :");
    scanf("%d",&num1);
    printf("Enter the second integer number :");
    scanf("%d",&num2);
    printf("\nInput your option :\n");
    printf("1-Addition.\n2-Substraction.\n3-Multiplication.\n4-Division.\n5-Exit.\n");
    scanf("%d",&op);
    switch(op) {
      case 1:
        printf("The Addition : %d",num1+num2);
        break;
      case 2:
        printf("The Subtraction :%d",num1-num2);
        break;
      case 3:
        printf("The Multiplication :%d",num1*num2);
        break;
      case 4:
        if(num2==0)
        {
          printf("The second integer is zero. Divide by zero.\n");
        }
        else
        {
          printf("The Division :%d\n",num1/num2);
        }
        break;
      case 5:
        break;
      default:
        printf("Input correct option\n");
        break;
    }
}
```

Output:

```
Enter the first integer number :5
Enter the second integer number :6

Input your option :
1-Addition.
2-Substraction.
3-Multiplication.
4-Division.
5-Exit.
1
The Addition : 11
Process returned 17 (0x11)   execution time : 10.822 s
Press any key to continue.
```

Problem 03:

Write a C Program to print Strong Numbers between given interval using function.

Code:

```c
#include <stdio.h>
long long fact(int num);
void printstrnum(int first, int last);
int main()
{
    int first,last;
    printf("Enter the lower number to find strong number: ");
    scanf("%d", &first);
    printf("Enter the upper number to find strong number: ");
    scanf("%d", &last);
    printf("Strong numbers between %d to %d are: ", first, last);
    printstrnum(first, last);
return 0;
}
void printstrnum(int first, int last)
{
    long long sum;
    int num;
    while(first != last)
    {
        sum = 0;
        num = first;
        while(num != 0)
        {
            sum += fact(num % 10);
            num /= 10;
        }
        if(first == sum)
        {
            printf("%d, ", first);
        }
        first++;
    }
}
long long fact(int num)
{
    if(num == 0)
        return 1;
    else
        return (num * fact(num-1));
}
```

Output:

```
Enter the lower number to find strong number: 1
Enter the upper number to find strong number: 500
Strong numbers between 1 to 500 are: 1, 2, 145,
Process returned 0 (0x0)   execution time : 2.962 s
Press any key to continue.
```

Problem 04: Write a C program to calculate sum of all digits of a number using recursion.

Code:

```c
#include <stdio.h>
int sumofdig(int num);
int main()
{
    int num,sum;
    printf("Enter a number to find sum of digits: ");
    scanf("%d", &num);
    sum = sumofdig(num);
    printf("Sum of digits of %d = %d", num, sum);
    return 0;
}
int sumofdig(int num)
{
    if(num == 0)
    return 0;
    return ((num % 10) + sumofdig(num / 10));
}
```

Output:

```
Enter a number to find sum of digits: 123
Sum of digits of 123 = 6
Process returned 0 (0x0)   execution time : 4.210 s
Press any key to continue.
```