A Micro Project Report

on

Problem Solving using C Language

Submitted by

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

NARASARAOPETA ENGINEERING COLLEGE: NARASARAOPET

(AUTONOMOUS)

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NARASARAOPETA ENGINEERING COLLEGE: NARASARAOPET

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CERTIFICATE

This is to certify that Shaik Sajida Pariveen, Roll No: 23471A05CY, a Second Year Student of the Department of Computer Science and Engineering, has completed the Micro Project Satisfactorily in "Problem Solving using C Language" for the Academic Year 2024-2025..

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Decimal to Octal and Hexadecimal

AIM :

1.Write a C program to convert decimal to Octal and hexadecimal.

```
#include<stdio.h>
#include<conio.h>
int  end,j,x,a[20];
void octal(int x)
{
int i=0;
while(x>0)
{
    a[i]=x%8;
    i++;
    x=x/8;
}
end=i;
printf("the octal number is:");
 for(j=end;j>=0;j--)
{
    printf("%d ",a[j]);
}
}
void hecxa(int y)
{
printf("\nhexadecimal number is:%X\n",y);
```

```
}
void main()
{
octal(4324);
hecxa(500);
}
```

Output :

```
the octal number is:0 1 0 3 4 4
hexadecimal number is:1F4
```

Delete Number in a given position in array

AIM :

2.Write a C program to delete Number in a given position in array.

Source Code :

```
#include <stdio.h>
#include <conio.h>
int main ()
{
   int arr[50];
   int pos, i, num;
   printf (" Enter the number of elements in an array: \n ");
   scanf (" %d", &num);
   printf (" Enter %d elements in array: \n ", num);
   for (i = 0; i < num; i++ )
   {
         printf (" arr[%d] = ", i);
         scanf (" %d", &arr[i]);
   }
  printf( " Define the position of the array element where you want to delete:
\n ");
   scanf (" %d", &pos);
   if (pos >= num+1)
   {
      printf (" Deletion is not possible in the array.");
```

```
    }
    else
    {
        for (i = pos - 1; i < num -1; i++)
        {
            arr[i] = arr[i+1];
        }
        printf (" The resultant array is: \n");
        for (i = 0; i< num - 1; i++)
        {
            printf (" arr[%d] = ", i);
            printf (" %d \n", arr[i]);
        }
     }
    return 0;
}
```

Output :

```
Enter the number of elements in an array:
5
Enter 5 elements in array:
 arr[0] = 2
arr[1] = 3
arr[2] = 4
arr[3] = 5
arr[4] = 6
Define the position of the array element where you want to delete:
1
The resultant array is:
arr[0] =  3
arr[1] =  4
arr[2] =  5
arr[3] =  6
```

Convert Numbers to Roman Numbers

AIM :

3.C program to Convert numbers to Roman numbers.

Source code:

```
#include<stdio.h>
int main()
{
   int num;
   printf("Enter a number: ");
   scanf("%d",&num);
   printf("Roman numerals:");
   while(num != 0)
   {
     if (num >= 1000)
      {
        printf("m");
        num = num-1000;
      }
      else if (num >= 900)
      {
        printf("cm");
        num = num-900;
      }
      else if (num >= 500)
      {
```

```
    printf("d");
    num =num-500;
  }
  else if (num >= 400)
  {
    printf("cd");
    num = num-400;
  }
  else if (num >= 100)
  {
    printf("c");
    num = num-100;
  }
 else if (num >= 90)
  {
    printf("xc");
    num =num- 90;
  }
 else if (num >= 50)
  {
    print(“f”);
    num = num-50;
  }
 else if (num >= 40)
  {
    printf("xl");
```

```
   num =num- 40;
 }
 else if (num >= 10)
 {
    printf("x");
    num =num-10;
 }
else if (num >= 9)
 {
   printf("ix");
   num =num- 9;
 }
 else if (num >= 5)
 {
   printf("v");
   num =num- 5;
 }
 else if (num >= 4)
 {
   printf("iv");
   num =num- 4;
 }
 else if (num >= 1)
 {
   printf("i");
   num = num-1;                                                    }
```

```
 }
return 0;
}
```

Output :

```
Enter a number: 52
Roman numerals: lii
```

Convert Roman number to Decimal number

AIM :

4.C program to Convert Roman numbers Decimal numbers.

Source Code:

```
#include<stdio.h>
#include<string.h>
int digit(char);
int main(){

   char roman_Number[1000];
   int i=0;
   long int number =0;

   printf("Enter any roman number (Valid digits are I, V, X, L, C, D, M):  \n");
   scanf("%s",roman_Number);
   while(roman_Number[i]){
            if(digit(roman_Number[i]) >= digit(roman_Number[i+1]))
        number = number + digit(roman_Number[i]);
      else{
        number = number + (digit(roman_Number[i+1]) - digit(roman_Number[i]));
        i++;
      }
      i++;
   }
```

```
    printf("Its decimal value is : %ld",number);
    return 0;
}
int digit(char c){
    int value=0;
    switch(c){
        case 'I':
            value = 1;
            break;
        case 'V':
            value = 5;
            break;
        case 'X':
            value = 10;
            break;
        case 'L':
            value = 50;
            break;
        case 'C':
            value = 100;
            break;
        case 'D':
            value = 500;
            break;
        case 'M':
```

```
            value = 1000;
            break;
        case '\0':
            value = 0;
            break;
        default: value = -1;
    }

    return value;
}
```

Output :

```
Enter any roman number (Valid digits are I, V, X, L, C, D, M):
L
Its decimal value is : 50
```

}

21 Match Sticks Problem

AIM:

5. write a program for a match stick game being played between the computer and user. Your program should ensure that the computer always wins. Rules for the game are as follows:

-there are 21 match sticks.

-the computer asks the player to pick 1,2,3,4 matchsticks.

-after the person picks,the computer does its picking.

-whoever is forced to pickup the last matchstick loses the game.

Source Code :

```
#include<stdio.h>
int main()
{
   int m = 21, p, c;
   while(1)
   {
      printf("\nNumber of Match sticks left = %d\n", m);
      printf("Pick 1 or 2 or 3 or 4 matches\n");
      scanf("%d", &p);
      if(p > 4 || p < 1)
         continue;
      m = m- p;

      printf("Number of matches left = %d\n", m);
      c = 5- p;
      printf("out of which computer picked up %d\n", c);
```

```
        m = m- c;
        if(m == 1)
        {
            printf("\nNumber of matches left = %d\n", m);
            printf("You lost the Game\n");
            break;
        }
    }
     printf("Computer Won the Game\n");
    return 0;
}
```

Output:

```
Number of Match sticks left = 21
Pick 1 or 2 or 3 or 4 matches
4
Number of matches left = 17
out of which computer picked up 1

Number of Match sticks left = 16
Pick 1 or 2 or 3 or 4 matches
2
Number of matches left = 14
out of which computer picked up 3

Number of Match sticks left = 11
Pick 1 or 2 or 3 or 4 matches
4
Number of matches left = 7
out of which computer picked up 1

Number of Match sticks left = 6
Pick 1 or 2 or 3 or 4 matches
2
Number of matches left = 4
out of which computer picked up 3

Number of matches left = 1
You lost the Game
Computer Won the Game
```