**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)**

**Accredited by NAAC with A+ Grade and NBA under Tier-1**

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**2024-20****25**

**NARASARAOPETA ENGINEERING COLLEGE: NARASARAOPET**

**(AUTONOMOUS)**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**



**CERTIFICATE**

**This is to certify that Vadugu Yasaswini, Roll No: 23471A05IN, 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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**C Program to Convert Numbers to Roman Numerals**

**AIM**:

**Write a C program to Convert Numbers to Roman Numerals**

**Source Code:**

#include <stdio.h>

Write a program which to find out the grace marks for a student using switch. The user should enter the class obtained by the student and the number of subjects he has failed in.

* If the student gets first class and the number of subjects he failed in is greater than 3, then he does not get any grace. If the number of subjects he failed in is less than or equal to 3 then the grace is of 5 marks per subject.
* If the student gets second class and the number of subjects he failed in is greater than 2, then he does not get any grace. If the number of subjects he failed in is less than or equal to 2 then the grace is of 4 marks per subject.

int main(void)

{

int num, rem;

printf("Enter a number: ");

scanf("%d", &num);

printf("Roman numerals: ");

while(num != 0)

{

if (num >= 1000) // 1000 - m

{

printf("m");

num -= 1000;

}

else if (num >= 900) // 900 - cm

{

printf("cm");

num -= 900;

}

else if (num >= 500) // 500 - d

{

printf("d");

num -= 500;

}

else if (num >= 400) // 400 - cd

{

printf("cd");

num -= 400;

}

else if (num >= 100) // 100 - c

{

printf("c");

num -= 100;

}

else if (num >= 90) // 90 - xc

{

printf("xc");

num -= 90;

}

else if (num >= 50) // 50 - l

{

printf("l");

num -= 50;

}

else if (num >= 40) // 40 - xl

{

printf("xl");

num -= 40;

}

else if (num >= 10) // 10 - x

{

printf("x");

num -= 10;

}

else if (num >= 9) // 9 - ix

{

printf("ix");

num -= 9;

}

else if (num >= 5) // 5 - v

{

printf("v");

num -= 5;

}

else if (num >= 4) // 4 - iv

{

printf("iv");

num -= 4;

}

else if (num >= 1) // 1 - i

{

printf("i");

num -= 1;

}

}

return 0;

}

**Input 1:**

Enter a number:100

**Output 1:**

Roman numerals:c

**Input 2:**

Enter a number:500

**Output 2:**

Roman numeral:d

**C Program to Convert Roman Number to Decimal Number**

**AIM**:

**Write a C Program to Convert Roman Number to Decimal Number**

**Source Code:**

#include <stdio.h>

#include <conio.h>

main(){

char roman[30];

int deci=0;

int length,i,d[30];

printf("The Roman equivalent to decimal");

printf("Decimal:.........Roman");

printf("%5d............%3c",1,'I');

printf("%5d............%3c",5,'V');

printf("%5d............%3c",10,'X');

printf("%5d............%3c",50,'L');

printf("%5d............%3c",100,'C');

printf("%5d............%3c",500,'D');

printf("%5d............%3c",1000,'M');

printf("Enter a Roman numeral:");

scanf("%s",roman);

length=strlen(roman);

for(i=0;i<length;i++){

switch(roman[i]){

case 'm':

case 'M': d[i]=1000; break;

case 'd':

case 'D': d[i]= 500; break;

case 'c':

case 'C': d[i]= 100; break;

case 'l':

case 'L': d[i]= 50; break;

case 'x':

case 'X': d[i]= 10; break;;

case 'v':

case 'V': d[i]= 5; break;

case 'i':

case 'I': d[i]= 1;

}

}

for(i=0;i<length;i++){

if(i==length-1 || d[i]>=d[i+1])

deci += d[i];

else

deci -= d[i];

}

printf("The Decimal equivalent of Roman numeral %s is %d", roman, deci);

}

**Input:**

The roman equivalent to decimalDeecimal:.............Roma n

1..........I 5...........V 10............X 50............L

100............C 500...........D

1000............M

Enter a Roman numeral:DC

**Output:**

The decimal equivalent of Roman numeral DC is 600

**Write a C program to display the currency in words**

**AIM**:

Write a C program to display the currency in words

**Source Code:**

#include <stdio.h>

#include <string.h>

void convertToWords(int n) {

// Arrays to store words for single digits, two digits, tens, and powers of ten

char \*single\_digits[] = { "", "One", "Two", "Three", "Four", "Five", "Six", "Seven", "Eight", "Nine" };

char \*two\_digits[] = { "Ten", "Eleven", "Twelve", "Thirteen", "Fourteen", "Fifteen", "Sixteen", "Seventeen", "Eighteen", "Nineteen" };

char \*tens\_multiple[] = { "", "", "Twenty", "Thirty", "Forty", "Fifty", "Sixty", "Seventy", "Eighty", "Ninety" };

char \*tens\_power[] = { "Hundred", "Thousand" };

// Handle 0 explicitly

if (n == 0) {

printf("Zero\n");

return;

}

// Check for thousands place

if (n / 1000 > 0) {

printf("%s %s ", single\_digits[n / 1000], tens\_power[1]);

n %= 1000;

}

// Check for hundreds place

if (n / 100 > 0) {

printf("%s %s ", single\_digits[n / 100], tens\_power[0]);

n %= 100;

}

// Check for numbers from 10 to 19

if (n >= 10 && n <= 19) {

printf("%s ", two\_digits[n - 10]);

return;

}

// Check for tens place

if (n >= 20) {

printf("%s ", tens\_multiple[n / 10]);

n %= 10;

}

// Check for units place

if (n > 0) {

printf("%s ", single\_digits[n]);

}

printf("\n");

}

int main() {

int amount;

printf("Enter amount: ");

scanf("%d", &amount);

if (amount < 0 || amount > 9999) {

printf("Amount out of supported range (0-9999).\n");

return 1;

}

printf("Amount in words: ");

convertToWords(amount);

return 0;

}

**Input 1:**

Enter amount:550

**Output 1:**

Amount in words:Five Hundred Fifty

**Input 2:**

Enter amount:650

**Output 2:**

Amount in words:Six Hundred Fifty