**G. H. RAISONI COLLEGE OF ENGG., NAGPUR**

**(An Autonomous Institute)**

**Department of Computer Science & Engg.**



**Date: 02-09-2021**

**Practical Subject: COMPILER DESIGN**

**Session: 2021-22**

**Student Details:**

| **Roll Number** | 01 |
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| **Semester** | 9th |
| **Section** | A |
| **Batch** | CSE |

**Practical Details: Practical Number-7;**

| Practical Aim | Write a lex program to convert Roman number to Decimal Number |
| --- | --- |
| Theory & Syntax | Lex is a computer program that generates lexical analyzers. Lex reads an input stream specifying the lexical analyzer and outputs source code implementing the lexer in the C programming language.  Approach: A number in Roman Numerals is a string of these symbols written in descending order(e.g. M’s first, followed by D’s, etc.). However, in a few specific cases, to avoid four characters being repeated in succession(such as IIII or XXXX), subtractive notation is often used as follows:  ⦁ I placed before V or X indicates one less, so four is IV (one less than 5) and 9 is IX (one less than 10).  ⦁ X placed before L or C indicates ten less, so forty is XL (10 less than 50) and 90 is XC (ten less than a hundred).  ⦁ C placed before D or M indicates a hundred less, so four hundred is CD (a hundred less than five hundred) and nine hundred is CM (a hundred less than a thousand).  Given a Romal numeral, the task is to find its corresponding decimal value.  Example :  Input: IX  Output: 9  IX is a Roman symbol which represents 9  Input: XL  Output: 40  XL is a Roman symbol which represents 40  Input: MCMIV  Output: 1904  M is a thousand,  CM is nine hundred and  IV is four |
| Program | %{  int total=0;  %}  WS [\t]+  %%  I total += 1;  IV total += 4;  V total += 5;  IX total += 9;  X total += 10;  XL total +=40;  L total += 50;  XC total += 90;  C total += 100;  CD total += 400;  D total += 500;  CM total += 900;  M total += 1000;  {WS} |  \n return total;  %%  int main() {  int first;  first = yylex();  printf ("The Value is %d\n", first);  return 0;  } |
| Output |  |
| Conclusion | Performed and executed lex program to convert Roman number to Decimal Number |