# Session 7: Intermediate Code Generation and Machine Code Generation

## I. OBJECTIVES:

Writing a program to implement the intermediate code generation and the machine code generation

## II. DEMONSTRATION OF USEFUL RESOURCES:

Sample programs will be demonstrated related to this session.

## III. LAB EXERCISE:

Write a program which can generate 3 address code for a given expression.

**Sample Input:** *w = a-b*c/d+e-f*

**Sample Output:**

| The 3-Address Code: | Expression |
|---|---|
| Z = c/d | w=a-b*Z+e-f |
| Y = b*Z | w=a-Y+e-f |
| X = Y+e | w=a-X-f |
| W = a-X | w=W-f |
| V = W-f | w=V |
| w = V | |

## IV. ASSIGNMENT #7:

Write a program to generate machine code form a 3-Address code stored in a file.

**Sample Input:**

```
X=a-b
Y=a+c
Z=d+b
C=a-d
```

**Sample Output:**

```
-----------------------------------------------------------
      Statement          Target Code
-----------------------------------------------------------
       X=a-b              MOV R0,a
                          SUB R0,b
       Y=a+c              MOV R1,a
                          ADD R1,c
      Z=d+b               MOV R2,d
                           ADD R2,b
       C=a-d              MOV R3,a
                          SUB R3,d
```