**EXP NON:4 IMPLEMENTATION OF RELOCATION LOADER**

**AIM:**

To write a C program to implementation of relocation loader.

**ALGORITHM:**

1.program\_linked\_origin:=<link origin>from linker command;

2.For each object module

a) t\_origin:=translation origin of the object module;

om\_size:=size of the object module ;

b)relocation\_factor:=program\_linked\_origin -t\_origin;

c)read the machine language program in work\_area.

d)read RELOCTAB of the object module.

e)For each entry in RELOCTAB

i)translation\_addr:=address in the RELOCTAB entry;

ii)address\_in\_work\_area:=address of work\_area+translation-address-t\_origin;

iii)add relocation\_factor to the operand address in the word with the address address\_in\_work\_area.

f)program\_linked\_origin:=program\_linked\_origin+om\_size;

**PROGRAM:**

#include<stdio.h>

#include<stdlib.h>

#include<string.h>

#include<conio.h>

int checkaddr(char var[],int arr[],int n)

{

int m=atoi(var);

int i,flag=0;

for(i=0;i<n;i++)

{

if(m==arr[i])

{

return 1;

}

}

return 0;

}

int main()

{

int line=0,i=0,j,s,result;

FILE \*f1,\*f2,\*f3;

char str[40],var1[4][10];

f1=fopen("C:/Users/cse/Desktop/relocat-input1.txt","r");

f2=fopen("C:/Users/cse/Desktop/relocat-input.txt","r");

f3=fopen("C:/Users/cse/Desktop/relocat-output.txt","w");

while(!feof(f1))

{

fgets(str,40,f1);

line++;

}

fclose(f1);

int arr1[line];

f1=fopen("C:/Users/cse/Desktop/relocat-input1.txt","r");

while(!feof(f1))

{

fgets(str,40,f1);

strtok(str,"\n");

char \*ptr=strtok(str," ");

while(ptr!=NULL)

{

static int m=0;

arr1[m]=atoi(str);

ptr=strtok(NULL," ");

m++;

s=m;

}

}

fclose(f1);

while(!feof(f2))

{

fgets(str,40,f2);

strtok(str,"\n");

char \*ptr=strtok(str," ");

while(ptr!=NULL)

{

strcpy(var1[i],ptr

i++;

ptr=strtok(NULL," ");

}

result=checkaddr(var1[0],arr1,s);

if(result==1)

{

int x,c;

for(x=0;x<i;x++)

{

c=atoi(var1[x]);

if(x==0||x==3)

{

c=c+500;

}

fprintf(f3,"%d ",c);

}

fprintf(f3,"\n");

}

if(result==0)

{

int x,c;

for(x=0;x<i;x++)

{

c=atoi(var1[x]);

if(x==0)

{

c=c+500;

}

fprintf(f3,"%d ",c);

}

fprintf(f3,"\n");

}

i=0;

}

}

**INPUT:**

**input1.txt:**

601

602

603

604

606

607

608

609

610

611

**input.txt:**

101 09 0 113

102 04 2 115

103 05 2 116

104 03 2 116

105 04 3 116

106 01 3 115

107 05 3 116

108 06 3 113

109 07 2 104

110 05 2 114

111 10 0 114

112 00 0 000

113 11 1 111

114 11 1 111

115 00 0 111

116 11 1 111

**OUTPUT:**

**Output.txt:**

601 9 0 613

602 4 2 615

603 5 2 616

604 3 2 616

605 4 3 616

606 1 3 615

607 5 3 616

608 6 3 613

609 7 2 604

610 5 2 614

611 10 0 614

612 0 0 0

613 11 1 111

614 11 1 111

615 0 0 111

616 11 1 111

**RESULT:**

Thus implementation of relocation loader using c program is verified and executed successfully.