BCSE307P – Compiler Design Lab

Winter Semester 2023-24

Assessment 6

Intermediate Code Generation

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Task:

C Program for Intermediate Code Generation

Code:

```
#include<stdio.h>

#include <stdlib.h>

#include<string.h>


int i=1,j=0,no=0,tmpch=90;


char str[100],left[15],right[15];


void findopr();


void explore();


void fleft(int);


void fright(int);


struct exp


{


int pos;


char op;
```

```
}k[15];

void main()

{

printf("\t\tINTERMEDIATE CODE GENERATION\n\n");

printf("Enter the Expression :");

scanf("%s",str);

printf("The intermediate code:\n");

findopr();

explore();

}

void findopr()

{

for(i=0;str[i]!='\0';i++)

if(str[i]==':')

{
```

```
k[j].pos=i;

k[j++].op=':';

}

for(i=0;str[i]!='\0';i++)

if(str[i]=='/')

{

k[j].pos=i;

k[j++].op='/';

}

for(i=0;str[i]!='\0';i++)

if(str[i]=='*')

{

k[j].pos=i;

k[j++].op='*';
```

```
}

for(i=0;str[i]!='\0';i++)

if(str[i]=='+')

{

k[j].pos=i;

k[j++].op='+';

}

for(i=0;str[i]!='\0';i++)

if(str[i]=='-')

{

k[j].pos=i;

k[j++].op='-';

}

}

void explore()
```

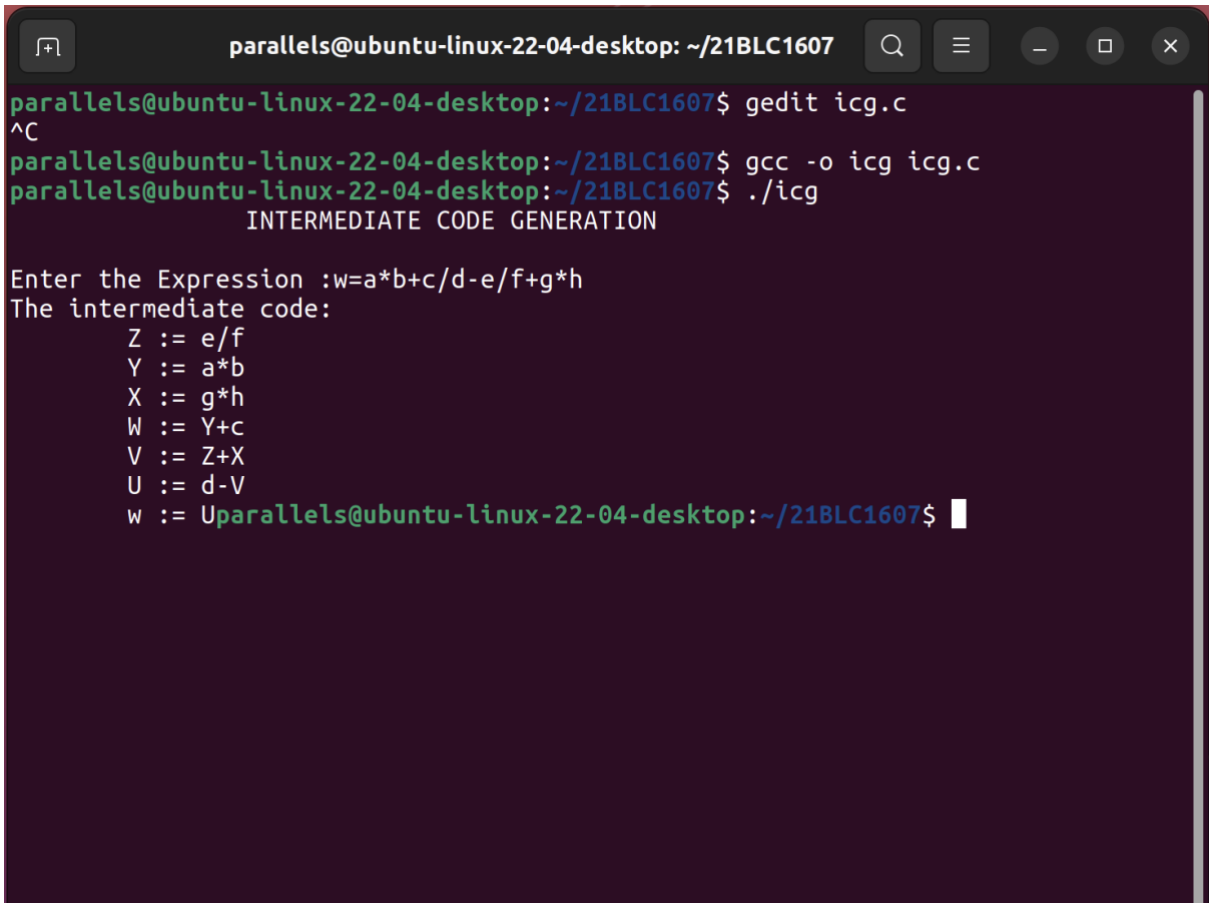
```
{

i=1;

while(k[i].op!='\0')

{

fleft(k[i].pos);

fright(k[i].pos);

str[k[i].pos]=tmpch--;

printf("\t%c := %s%c%s\t\t",str[k[i].pos],left,k[i].op,right);

printf("\n");

i++;

}

fright(-1);

if(no==0)

{
```

```
fleft(strlen(str));

printf("\t%s := %s",right,left);




exit(0);

}

printf("\t%s := %c",right,str[k[--i].pos]);




}

void fleft(int x)

{

int w=0,flag=0;

x--;

while(x!= -1 &&str[x]!= '+'
&&str[x]!='*'&&str[x]!='='&&str[x]!='\0'&&str[x]!='-
'&&str[x]!='/'&&str[x]!=':')

{
```

```
if(str[x]!='$'&& flag==0)

{

left[w++]=str[x];

left[w]='\0';

str[x]='$';

flag=1;

}

x--;

}

}

void fright(int x)

{

int w=0,flag=0;

x++;
```

```
while(x!= -1 && str[x]!=
'+'&&str[x]!='*'&&str[x]!='\0'&&str[x]!='='&&str[x]!=':'&&str[x]!='-
'&&str[x]!='/')


{


if(str[x]!='$'&& flag==0)


{


right[w++]=str[x];


right[w]='\0';


str[x]='$';


flag=1;


}


x++;


}


}
```

Output:



Result:

Thus, the experiment has been successfully executed and verified.