ADITHI GIRIMAJI
1BM19CS005

Lab program-2

```
#include <stdio.h>
# include < string.h>
int main()
{
    char stack[20], iexp[50], pexp[50];
    int i, p=0, s=-1, j, z=1, operands =0, operators =0,
    obracket =0, cbracket=0;
    printf("enter the expression\n");
    scanf(" %s ", iexp);
    for (i=0; i< strlen(iexp); i++)
    {
      if (iexp[i]=='+'||iexp[i]=='-'||iexp[i]=='*'||iexp[i]
        =='/'||iexp[i]=='+'||iexp[i]=='^')
      operators ++;
      if((iexp[i]>65 && iexp[i]<=90)||(iexp[i] >=97 && iexp[i]<=
          122))
      operands ++;
      if (iexp[i]=='(')
      obracket++;
      if (iexp[i] ==')')
      cbracket++;
    }
    if (operands != (operators+1)|| Obracket != cbracket)
    z=0;
   for (i=0; i< strlen(iexp); i++)
   {
      if ((iexp[i]>65 && iexp[i]<=90)|| (iexp[i]>=97 &&
        iexp[i]<=122))
      {  pexp[p]=iexp[i];
         p++;
      }
    else if ( iexp[i]=='(')
    {    s++;
         stack[s]=iexp[i];
    }
  else  if (iexp[i] ==')')
  {
     if (iexp[i-1]=='+'|| iexp[i-1]=='-'|| iexp[i-1]=='*'
       || iexp[i -1]=='/' ||iexp [i-1]=='+')
    z=0;
  do
 {     if (stack[s]=='(')
       {     s--;
         break;
       }
     pexp[p]= stack[s];
     p++;
     s--;
  } while ('c'=='c');
 }
else  if (iexp[i]=='+' ||iexp [i]=='-')
  {
     if (stack[s] =='(' ||s==-1)
     {  s++;
        stack[s] = iexp[i];
     }
     else
   {   do
       {
          f=0;
          if (stack[s] =='(')
           {   s++;
             stack[s]= iexp [i];
```

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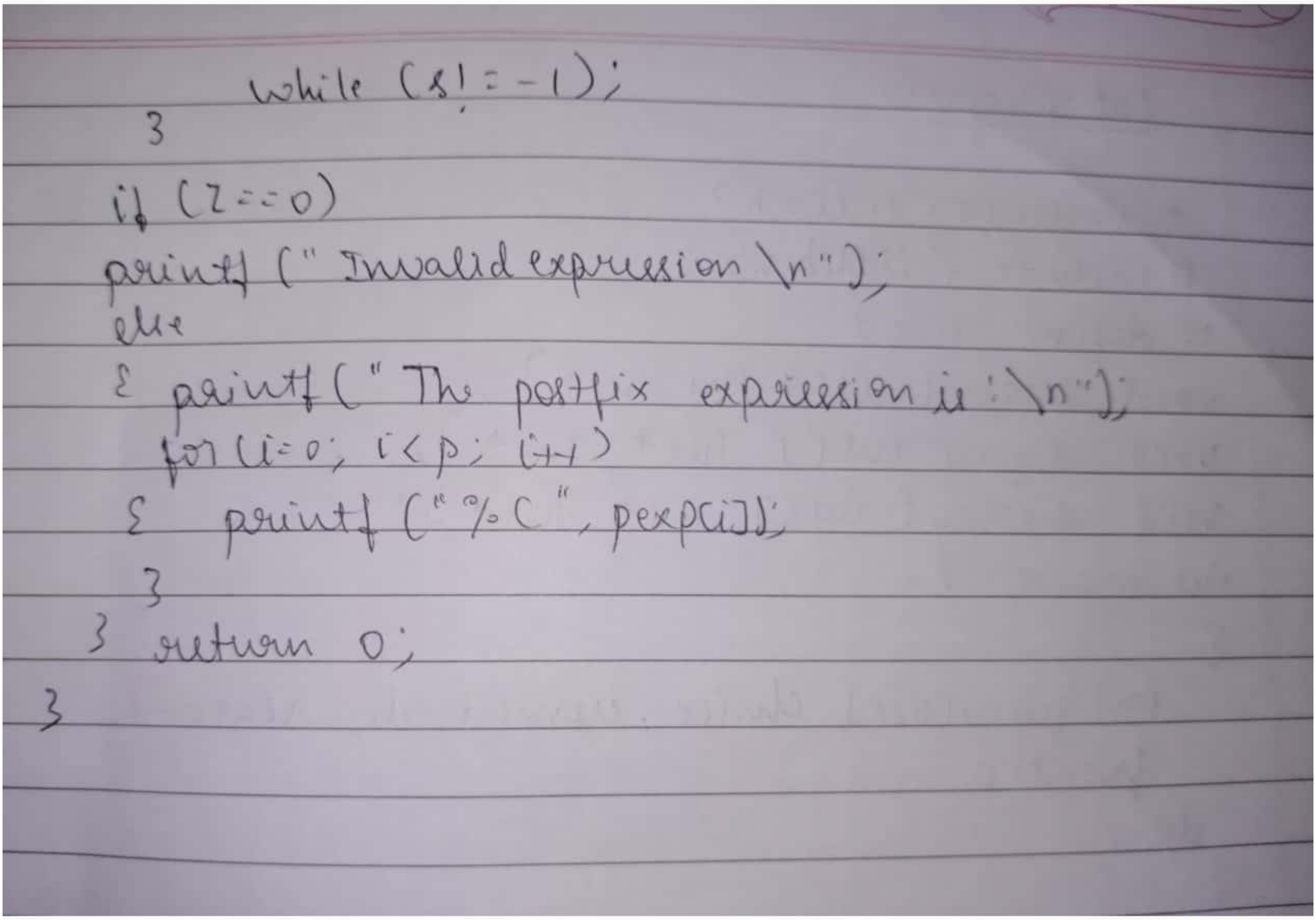
```
                f=1;
                break;
          }
          pexp[p]= stack[s];
          p++;
       s--;
     }
     while (s!=-1)
     if (f==0)
     {  s++;
        stack[s] = iexp[i];
     }
  }
}
else if (iexp[i] == '*' || iexp[i] == '/')
  { if (stack[s]=='(' || stack[s] == '+' || stack[s] == '-'
            || s==-1)
      { s++;
          stack[s]= iexp[i];
      }
     else
     { do {
             f=0;
            if(stack[s] == '+'|| stack[s] == '-'|| stack[s]=='(')
            {  s++;
               stack[s]= iexp[i];
               f=1;
               break;
            }
            pexp[p]= stack[s];
          p++; s--;
      } while (s!=-1);
```

```
if (f==0)
  { s++;
    stack[s]=iexp[i];
  }}}
else if (iexp[i]=='^')
  { if (stack[s]=='(' || stack[s] == '+' ||
  stack[s]=='-' || s==-1 || stack[s]=='*'
   || stack[s]=='/')
  {     s++;
      stack[s]=iexp[i];
  }
  else
  { do {
          f=0;
        if (stack[s]=='+'|| stack[s] == '-'||
      stack[s]=='('|| stack[s]=='*'|| stack[s]=='/')
      { s++;
        stack[s]=iexp[i];
        f=1;
       break;
     } pexp[p]=stack[s];
       p++;
      s--;
   } while (s!=-1)
    if (f==0)
     { s++;
     stack[s]=iexp[i];
    }}}}
if (s!=-1)
{  do {
        pexp[s]=stack[s];
         p++; s--;
     }
```



```
        while (s!=-1);
   }
  if (z==0)
  printf (" Invalid expression \n");
  else
  { printf (" The postfix expression is:\n");
    for (i=0; i<p; i++)
   {  printf ("%c", pexp[i]);
    }
  } return 0;
}
```

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