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#include<stdio.h>
#include<string.h>
#include<ctype.h>
char tempvariables[]={ 'z','y','x','w','v','u','t' };
int length,top=-1,count=0,tvar=0;
char input[20],tempinput[20];
char prearray[20];
char stack[20];
char threeaddress[10][10];
char concatarray[20];
char *strrev(char *str)
{
    if (!str || ! *str) return str;
    int i = strlen(str) - 1, j = 0;
    char ch;
    while (i > j)
    {
        ch = str[i];
        str[i] = str[j];
        str[j] = ch;
        i--;
        j++;
    }
    return str;
}
int prec(char op){
    switch(op){
        case '+': return 1;
        break;

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        break;
        case '*': return 2;
        break;
        case '/': return 2;
        break;
    }
}

int isoperator(char sym){
    if(sym=='+'||sym=='-'||sym=='*'||sym=='/')
        return 1;
    else
        return 0;
}


void push(char sym){
    top++;
    stack[top]=sym;
}

char pop(){
    top--;
    return(stack[top+1]);
}

void display(){
    int i;
    printf("\nStack");
    for(i=top;i>-1;i--)
        printf("%c\t",stack[i]);
}

void del(char sym,int pos){
    int j,c=0,k;
    for(j=0;j<pos;j++)

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        tempinput[j]=prearray[j];

tempinput[j]=tempvariables[tvar-1];
k=j+1;
for(j=j+3;j<length;j++)
    tempinput[k++]=prearray[j];
strcpy(prearray,tempinput);
length=strlen(prearray);
}

void prefix()
{
    int i,k=0;
    char popval;
    for(i=0;i<length;i++)
    {
        if(isalpha(input[i])|| isdigit(input[i]))
            prearray[k++]=input[i];
        else
        {
            if(top==-1)
                push(input[i]);
            else
            {
                while(prec(stack[top])>=prec(input[i]))
                    prearray[k++]=pop();
                push(input[i]);
            }
        }
    }

    if(top!=-1)
        for(i=top;i>-1;i--)
            prearray[k++]=pop();
}

```

```
void generator(char op,char sym1,char sym2){
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    int len=0;
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    concatarray[len++]=tempvariables[tvar++];
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    concatarray[len++]='=';
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```
    concatarray[len++]=sym1;
```

```
    concatarray[len++]=op;
```

```
    concatarray[len++]=sym2;
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```
    strcpy(threeaddress[count++],concatarray);
```

```
}
```

```
void main(){
```

```
    int i;
```

```
    printf("\nEnter the input expression: ");
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```
    scanf("%s",input);
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```
    length=strlen(input);
```

```
    strcpy(input,strev(input));
```

```
    prefix();
```

```
    strcpy(prearray,strev(prearray));
```

```
    for(i=0;i<length;i++)
```

```
        if(isoperator(prearray[i]))
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```
            if((isalpha(prearray[i+1])||
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```
isdigit(prearray[i+1]))&&(isalpha(prearray[i+2])||isdigit(prearray[i+2])))
```

```
            {
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                generator(prearray[i],prearray[i+1],prearray[i+2]);
```

```
                del(prearray[i],i);
```

```
                i=-1;
```

```
            }
```

```
    printf("\nThree Address Code for the expression:\n\n");
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```
    for(i=0;i<count;i++)
```

```
        printf("%s\n",threeaddress[i]);
```

```
}
```