19BCE248

2CS701

Compiler Construction

Practical 8

Aim :- To implement type checker.

Code:

```
#include<stdio.h>
#include<stdlib.h>
int main()
{
   int n,i,k,flag=0;
   char vari[15],typ[15],b[15],c;
   printf("Enter the number of variables:");
   scanf("%d",&n);
   for(i=0; i<n; i++)
   {
      printf("Enter the variable[%d]:",i);
      scanf(" %c",&vari[i]);
      printf("Enter the variable-type[%d](float-f,int-i):",i);
      scanf(" %c",&typ[i]);
      if(typ[i]=='f')
         flag=1;
   }
   printf("Enter the Expression(end with $):");
   i=0;
   getchar();
   while((c=getchar())!='$')
   {
      b[i]=c;
      i++;
   }
```

```
    k=i;
    for(i=0; i<k; i++)
    {
       if(b[i]=='/')
       {
          flag=1;
          break;
       }
    }
    for(i=0; i<n; i++)
    {
       if(b[0]==vari[i])
       {
          if(flag==1)
          {
             if(typ[i]=='f')
             {
                printf("\nThe datatype of %c is correctly defined \n",vari[i]);
                break;
             }
             else
             {
                printf("Identifier %c must be a float type \n",vari[i]);
                break;
             }
          }
          else
          {
             printf("\nThe datatype of %c is correctly defined\n",vari[i]);
             break;
          }
       }
    }
    return 0;
}
```

Output:

```
Enter the number of variables:3
Enter the variable[0]:x
Enter the variable-type[0](float-f,int-i):f
Enter the variable[1]:y
Enter the variable-type[1](float-f,int-i):i
Enter the variable[2]:z
Enter the variable-type[2](float-f,int-i):f
Enter the Expression(end with $):y=x+z$
Identifier y must be a float type
```

```
Enter the number of variables:2
Enter the variable[0]:x
Enter the variable-type[0](float-f,int-i):f
Enter the variable[1]:y
Enter the variable-type[1](float-f,int-i):i
Enter the Expression(end with $):x=y$

The datatype of x is correctly defined
```