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Sub: CD

Practical – 8[Batch-71]

Code:

```
#include <stdio.h>

#include <string.h>

#include <ctype.h>


char input[100];

int i, error;


void E();

void T();

void Eprime();

void Tprime();

void F();


int main() {

    i = 0;

    error = 0;


    printf("Enter an arithmetic expression: "); // Example: a+a*a
    fgets(input, sizeof(input), stdin);
    input[strcspn(input, "\n")] = '\0';
```

```
E());
```

```
if (strlen(input) == i && error == 0) {
```

```
    printf("\nString Accepted!\n");
```

```
} else {
```

```
    printf("\nString Rejected!\n");
```

```
}
```

```
return 0;
```

```
}
```

```
void E() {
```

```
    T();
```

```
    Eprime();
```

```
}
```

```
void Eprime() {
```

```
    if (input[i] == '+') {
```

```
        i++;
```

```
        T();
```

```
        Eprime();
```

```
    }
```

```
}
```

```
void T() {
```

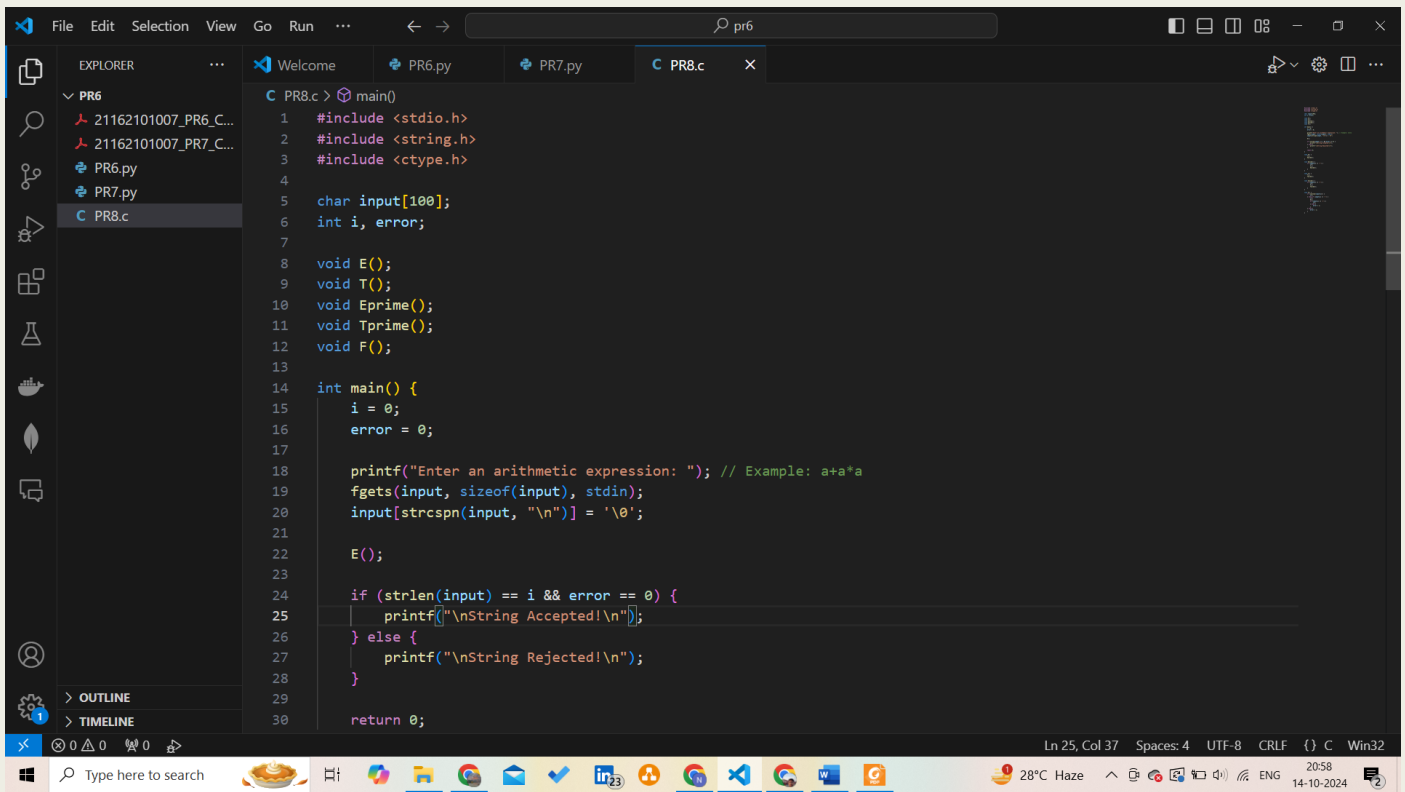
```
    F();
```

```
    Tprime();
```

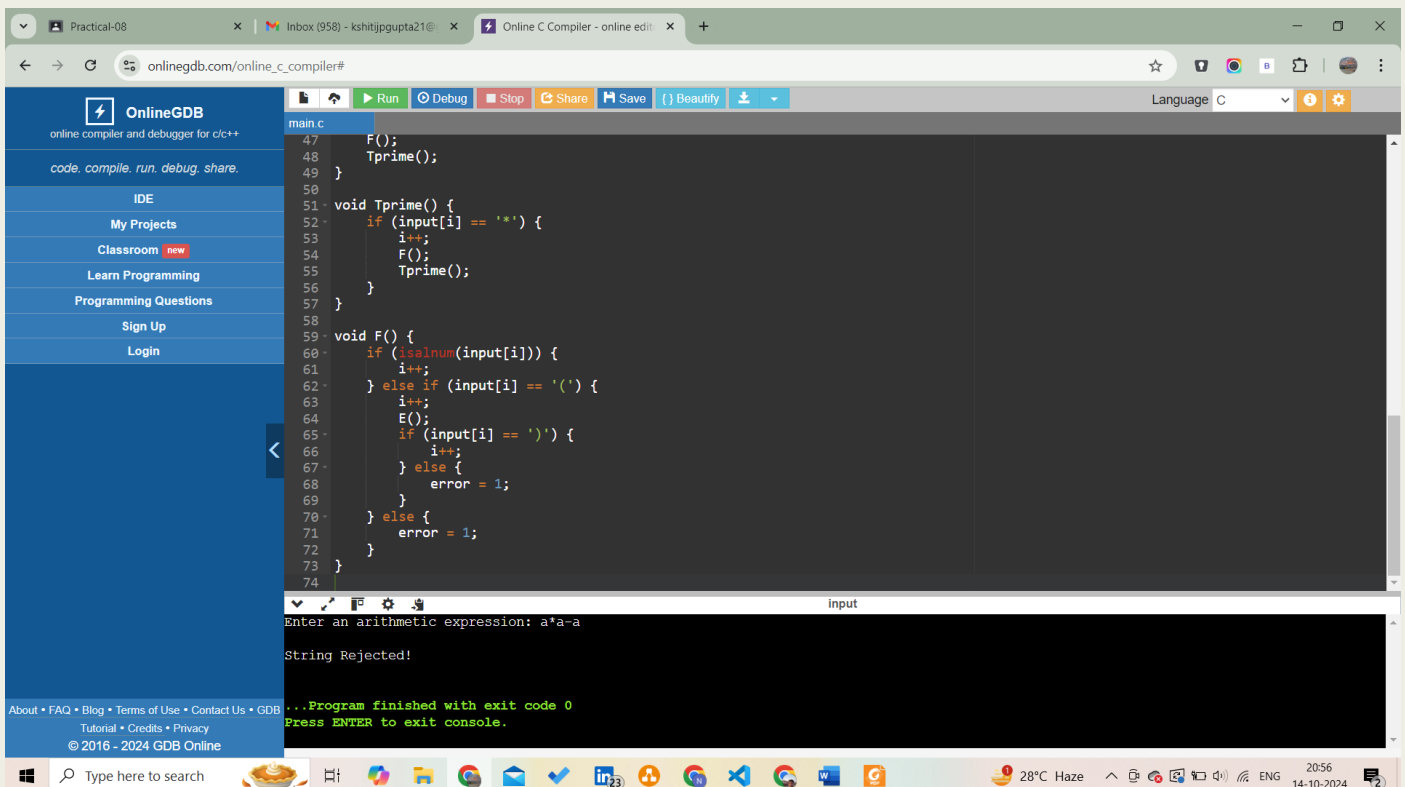
```
}
```

```
void Tprime() {  
    if (input[i] == '*') {  
        i++;  
        F();  
        Tprime();  
    }  
}
```

```
void F() {  
    if (isalnum(input[i])) {  
        i++;  
    } else if (input[i] == '(') {  
        i++;  
        E();  
        if (input[i] == ')') {  
            i++;  
        } else {  
            error = 1;  
        }  
    } else {  
        error = 1;  
    }  
}
```



OUTPUT:



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main.c

```
47 F();
48 Tprime();
49 }
50
51 void Tprime() {
52     if (input[i] == '*') {
53         i++;
54         F();
55         Tprime();
56     }
57 }
58
59 void F() {
60     if (isalnum(input[i])) {
61         i++;
62     } else if (input[i] == '(') {
63         i++;
64         E();
65         if (input[i] == ')') {
66             i++;
67         } else {
68             error = 1;
69         }
70     } else {
71         error = 1;
72     }
73 }
74 }
```

input

Enter an arithmetic expression: a+a-a
String Rejected!
...Program finished with exit code 0
Press ENTER to exit console.

Type here to search

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main.c

```
47 F();
48 Tprime();
49 }
50
51 void Tprime() {
52     if (input[i] == '*') {
53         i++;
54         F();
55         Tprime();
56     }
57 }
58
59 void F() {
60     if (isalnum(input[i])) {
61         i++;
62     } else if (input[i] == '(') {
63         i++;
64         E();
65         if (input[i] == ')') {
66             i++;
67         } else {
68             error = 1;
69         }
70     } else {
71         error = 1;
72     }
73 }
74 }
```

input

Enter an arithmetic expression: a+a*A
String Accepted!
...Program finished with exit code 0
Press ENTER to exit console.

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