

Q1.

```
#include<stdio.h>
#include<stdlib.h>

int main(){
    FILE *fa, *fb;
    char ca, cb;
    fa = fopen("HelloWorld.c", "r");
    if(fa == NULL){
        printf("Cannot open file \n");
        exit(0);
    }
    fb = fopen("q1out.c", "w");
    ca = getc(fa);
    while (ca != EOF){
        if(ca==' '){
            putc(ca,fb);
            while(ca==' '){
                ca = getc(fa);
            }
            if (ca=='/'){
                cb = getc(fa);
                if (cb == '/'){
                    while(ca != '\n')
                        ca = getc(fa);
                }
                else if (cb == '*'){
                    do{
                        while(ca != '*')
                            ca = getc(fa);
                        ca = getc(fa);
                    }while (ca != '/');
                }
                else{
                    putc(ca,fb);
                    putc(cb,fb);
                }
            }
            else putc(ca,fb);
            ca = getc(fa);
        }
    }
    fclose(fa);
    fclose(fb);
    return 0;
}
```

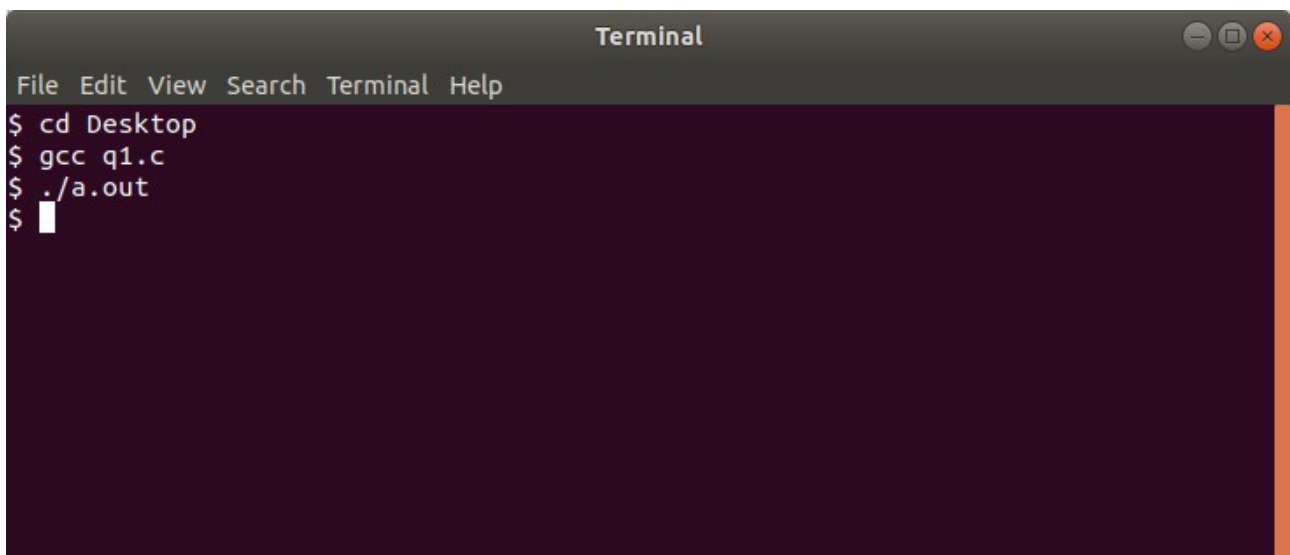
input file -
[HelloWorld.c]

```
#include <stdio.h>
#define ll long long
// remove it
int main(){
    printf("Hello World");
    return 0;
}
```

output file-

[q1out.c]

```
#include <stdio.h>
#define ll long long
int main(){
    printf("Hello World");
    return 0;
}
```



A screenshot of a terminal window titled "Terminal". The window has a dark background and a menu bar with "File", "Edit", "View", "Search", "Terminal", and "Help". The terminal shows the following commands and output:

```
$ cd Desktop
$ gcc q1.c
$ ./a.out
$
```

Q2

```
#include<stdio.h>
#include<stdlib.h>
#include <stdbool.h>
```

```
char temp[100];
```

```
bool is_include(){
    char s[] = "#include";
    for(int i=0;i<8;++i){
        if(s[i]!=temp[i]){
```

```

        return false;
    }
}
return true;
}

bool is_define(){
    char s[] = "#define";
    for(int i=0;i<7;++i){
        if(s[i]!=temp[i]){
            return false;
        }
    }
    return true;
}

void eraseComment(){
    FILE *fa, *fb;
    char ca, cb;
    fa = fopen("HelloWorld.c", "r");
    if(fa == NULL){
        printf("Cannot open file \n");
        exit(0);
    }
    fb = fopen("q1out.c", "w");
    ca = getc(fa);
    while (ca != EOF){
        if(ca==' '){
            putc(ca,fb);
            while(ca==' '){
                ca = getc(fa);
            }
            if (ca=='/'){
                cb = getc(fa);
                if (cb == '/'){
                    while(ca != '\n')
                        ca = getc(fa);
                }
                else if (cb == '*'){
                    do{
                        while(ca != '*')
                            ca = getc(fa);
                        ca = getc(fa);
                    }while (ca != '/');
                }
                else{
                    putc(ca,fb);
                    putc(cb,fb);
                }
            }
            else putc(ca,fb);
            ca = getc(fa);
        }
    }
}

```

```

    }
    fclose(fa);
    fclose(fb);
}

int main(){
    eraseComment();

    FILE *fa, *fb;
    char ca, cb;
    fa = fopen("q1out.c", "r");
    if(fa == NULL){
        printf("Cannot open file \n");
        exit(0);
    }
    fb = fopen("q2out.c", "w");
    ca = getc(fa);
    while (ca != EOF){
        if(ca=='#'){
            // putc(ca,fb);
            int x=0;
            while(ca!='\n'){

                // ca = getc(fa);
                temp[x++] = ca;
                temp[x] = '\0';
                ca = getc(fa);
            }
            printf(" bool = %d \n",is_include() );
            if(!is_include() && !is_define() ){
                for(int k=0;k<x;++k){
                    putc(temp[k],fb);
                }
            }

        }

        else putc(ca,fb);
        ca = getc(fa);
    }
    fclose(fa);
    fclose(fb);

    return 0;
}

```

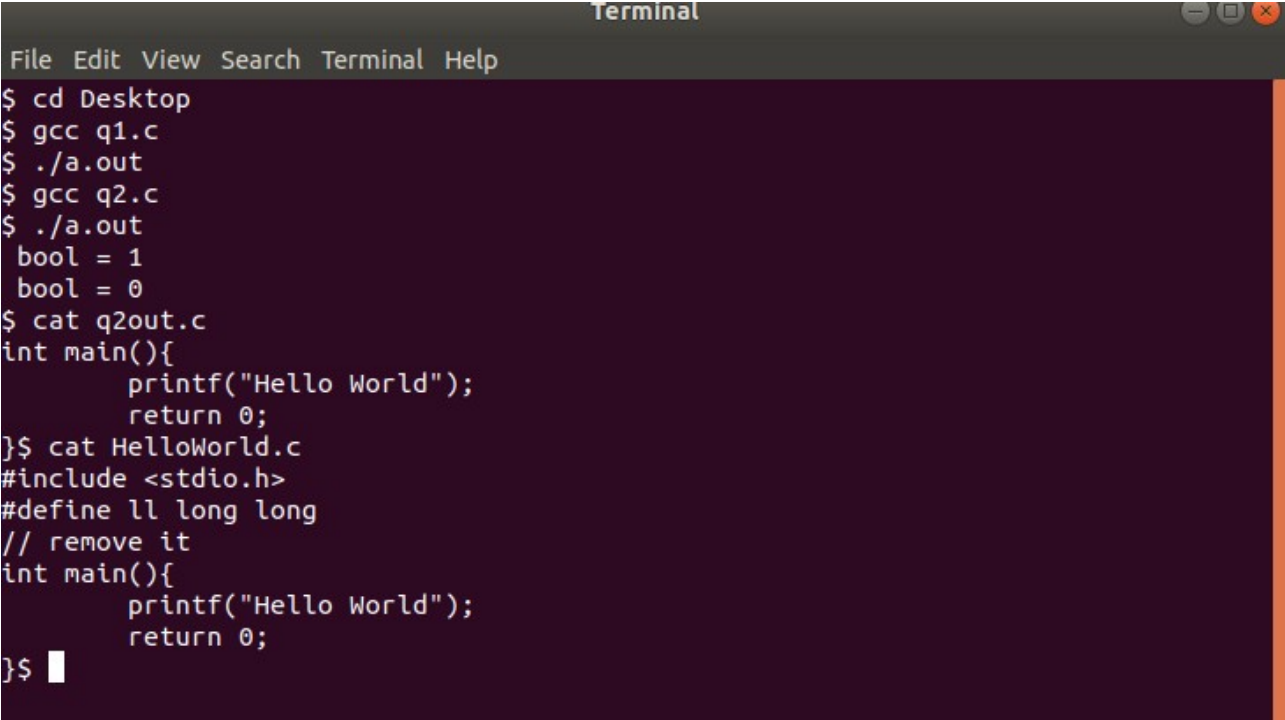
input file -
[HelloWorld.c]

```
#include <stdio.h>
#define ll long long
// remove it
int main(){
    printf("Hello World");
    return 0;
}
```

output file-

[q2out.c]

```
int main(){
    printf("Hello World");
    return 0;
}
```



A terminal window titled "Terminal" with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows the following commands and output:

```
$ cd Desktop
$ gcc q1.c
$ ./a.out
$ gcc q2.c
$ ./a.out
bool = 1
bool = 0
$ cat q2out.c
int main(){
    printf("Hello World");
    return 0;
}$ cat HelloWorld.c
#include <stdio.h>
#define ll long long
// remove it
int main(){
    printf("Hello World");
    return 0;
}$
```

Q3

```
#include<stdio.h>
#include<stdlib.h>
#include <stdbool.h>
#include <ctype.h>
#include <string.h>
```

```
char temp[100],word[100];
```

```
char keywords[10][10] ={{ "IF"}, {"ELSE"}, {"INT"}, {"MAIN"}, {"RETURN"}, {"PRINTF"} };
```

```

bool is_keyword(){
    // printf(" %s \n", word );
    for(int i=0;i<5;++i){
        if( strcmp(word,keywords[i])==0 ){
            return true;
        }
    }
    return false;
}

```

```

bool is_include(){
    char s[] = "#include";
    for(int i=0;i<8;++i){
        if(s[i]!=temp[i]){
            return false;
        }
    }
    return true;
}

```

```

bool is_define(){
    char s[] = "#define";
    for(int i=0;i<7;++i){
        if(s[i]!=temp[i]){
            return false;
        }
    }
    return true;
}

```

```

void eraseComment(){
    FILE *fa, *fb;
    char ca, cb;
    fa = fopen("HelloWorld.c", "r");
    if(fa == NULL){
        printf("Cannot open file \n");
        exit(0);
    }
    fb = fopen("q1out.c", "w");
    ca = getc(fa);
    while (ca != EOF){
        if(ca==' '){
            putc(ca,fb);
            while(ca==' '){
                ca = getc(fa);
            }
        }
        if (ca=='/'){
            cb = getc(fa);

```

```

        if (cb == '/'){
            while(ca != '\n')
                ca = getc(fa);
        }
        else if (cb == '*'){
            do{
                while(ca != '*')
                    ca = getc(fa);
                ca = getc(fa);
            }while (ca != '/');
        }
        else{
            putc(ca,fb);
            putc(cb,fb);
        }
    }
    else putc(ca,fb);
    ca = getc(fa);
}
fclose(fa);
fclose(fb);
}

```

```

void erasePreprocessor(){
    eraseComment();
}

```

```

FILE *fa, *fb;
char ca, cb;
fa = fopen("q1out.c", "r");
if(fa == NULL){
    printf("Cannot open file \n");
    exit(0);
}
fb = fopen("q2out.c", "w");
ca = getc(fa);
while (ca != EOF){
    if(ca=='#'){
        // putc(ca,fb);
        int x=0;
        while(ca!='\n'){

            // ca = getc(fa);
            temp[x++] = ca;
            temp[x] = '\0';
            ca = getc(fa);
        }
        printf(" bool = %d \n",is_include() );
        if(!is_include() && !is_define() ){
            for(int k=0;k<x;++k){

```

```

                                putc(temp[k],fb);
                                }
                            }

                    }

                    else putc(ca,fb);
                    ca = getc(fa);
                }
                fclose(fa);
                fclose(fb);
            }

int main(){
    erasePreprocessor();
    FILE *fa, *fb;
    char ca, cb;
    fa = fopen("HelloWorld.c", "r");
    if(fa == NULL){
        printf("Cannot open file \n");
        exit(0);
    }
    fb = fopen("q3out.c", "w");
    ca = getc(fa);
    int x=0;
    while (ca != EOF){

        if( isalpha(ca) ){
            word[x++] = (char)toupper(ca);
            word[x] = '\0';
            ca = getc(fa);
            continue;
        }

        else{
            // printf(" bool key = %d \n",is_keyword() );
            if( is_keyword() ){
                // printf(" %s \n", word);
                for(int k=0; k<x;++k){
                    putc(word[k],fb);
                }
                putc('\n',fb);
            }
            x=0;
            ca = getc(fa);
        }
    }
}

```

Terminal -

Terminal

File Edit View Search Terminal Help

```
$ cd Desktop
$ gcc q3.c
$ ./a.out
bool = 1
bool = 0
$ cat HelloWorld.c
#include <stdio.h>
#define ll long long
// remove it
int main(){
    if(1){
        printf("Hello World 1\n");
    }
    else{
        printf("Hello World 2\n");
    }

    return 0;
}$ cat q3out.c
INT
MAIN
```

IF

ELSE

RETURN