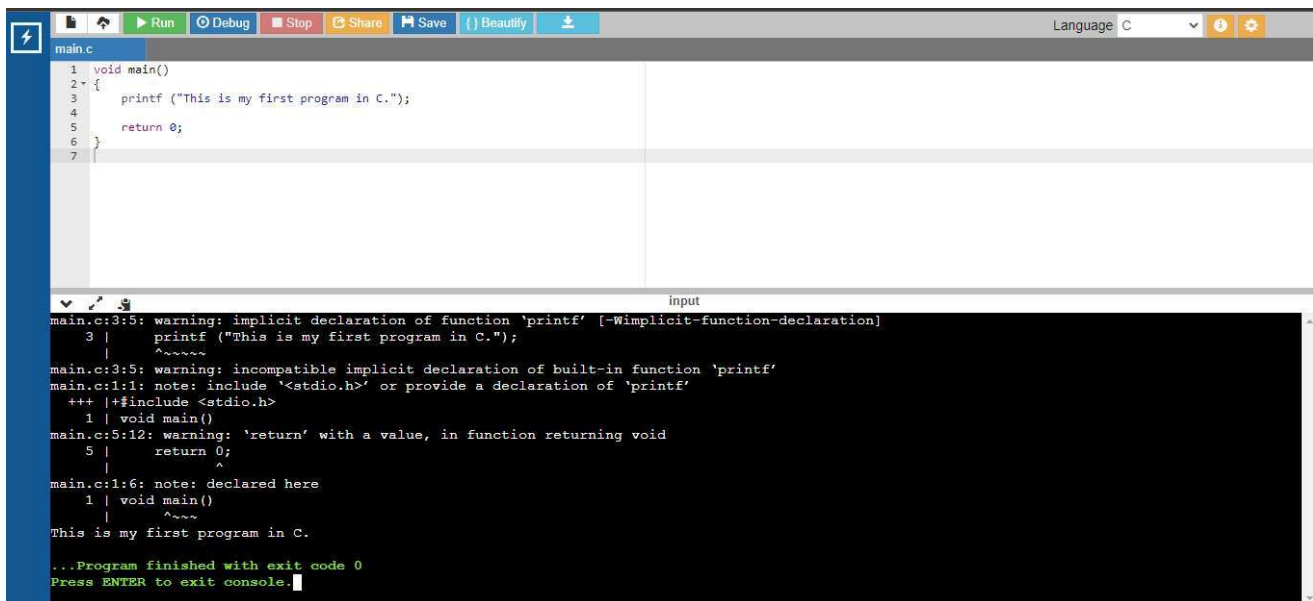


NAME: MOHSIN TAJ
ROLL NUMBER: EL-20123 (C)
DATE: 24-11-2021
DAY: WEDNESDAY
PROGRAMMING LANGUAGE LAB (EL-255)

LAB #01

1. Type the following program in C Editor and execute it. Mention the Error.



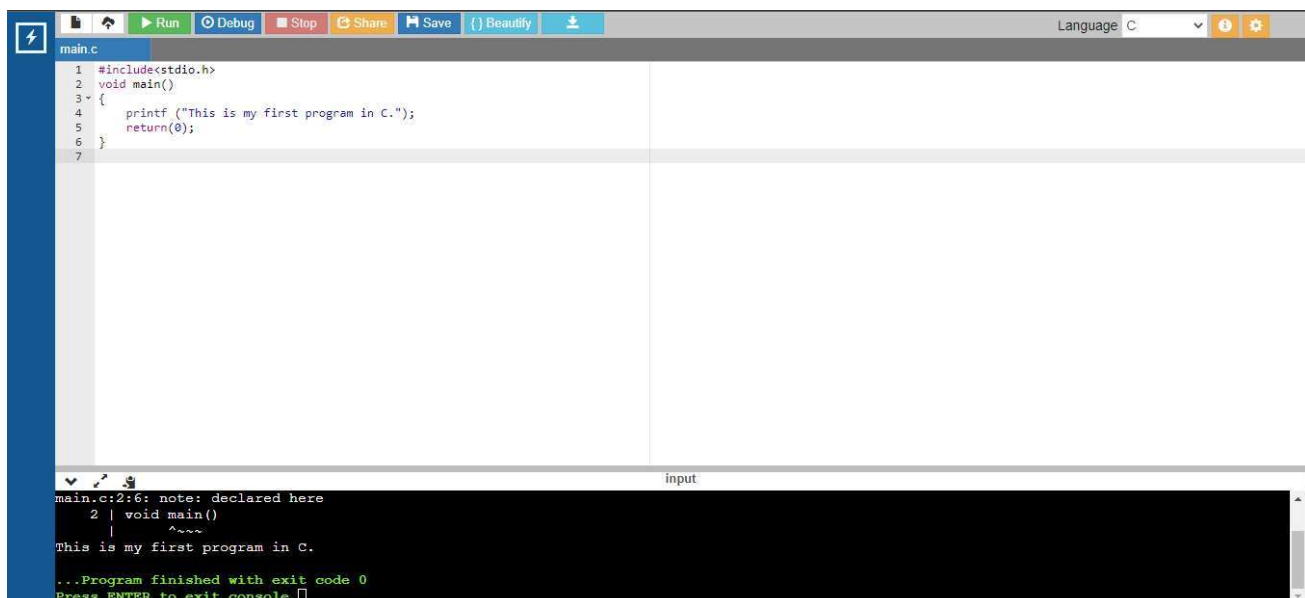
The screenshot shows a C editor window with a file named 'main.c'. The code in the editor is:

```
1 void main()
2 {
3     printf ("This is my first program in C.");
4
5     return 0;
6 }
7
```

The output window shows the following messages:

```
main.c:3:5: warning: implicit declaration of function 'printf' [-Wimplicit-function-declaration]
3 |     printf ("This is my first program in C.");
  |     ^~~~~~
main.c:3:5: warning: incompatible implicit declaration of built-in function 'printf'
main.c:1:1: note: include '<stdio.h>' or provide a declaration of 'printf'
+++ |#include <stdio.h>
1 | void main()
main.c:5:12: warning: 'return' with a value, in function returning void
5 |     return 0;
  |     ^
main.c:1:6: note: declared here
1 | void main()
  |     ^~~~~
This is my first program in C.
...Program finished with exit code 0
Press ENTER to exit console.
```

2. Add the following line at the start of the above program. Recompile the program and show the output.
#include<stdio.h>



The screenshot shows the same C editor window, but now with the following code:

```
1 #include<stdio.h>
2 void main()
3 {
4     printf ("This is my first program in C.");
5     return(0);
6 }
7
```

The output window shows the following messages:

```
main.c:2:6: note: declared here
2 | void main()
  |     ^~~~~
This is my first program in C.
...Program finished with exit code 0
Press ENTER to exit console.
```

3. Make the following changes in the program. What errors are observed?

(a) Write Void instead of void:



The screenshot shows a C compiler IDE with the following code in `main.c`:

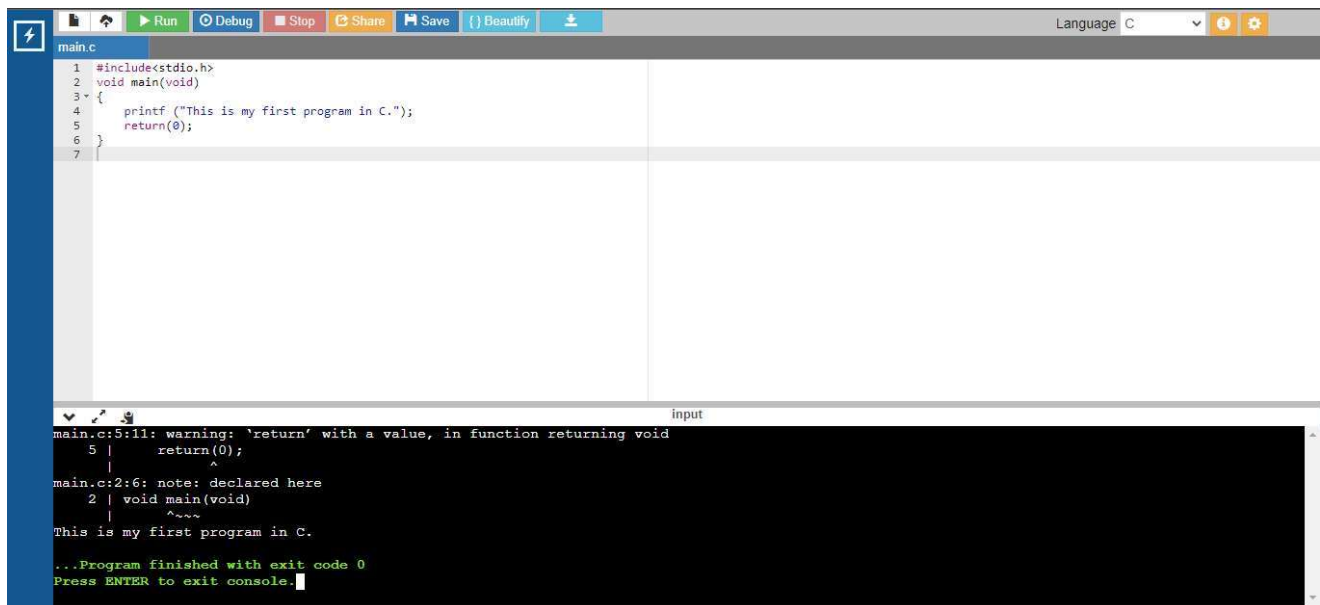
```
1 #include<stdio.h>
2 void main()
3 {
4     printf ("This is my first program in C.");
5     return(0);
6 }
7
```

The output window shows the following error:

```
2 | Void main()
  | ^~~~~~
  | void
```

Compilation failed due to following error(s).

(b) Write void main (void);



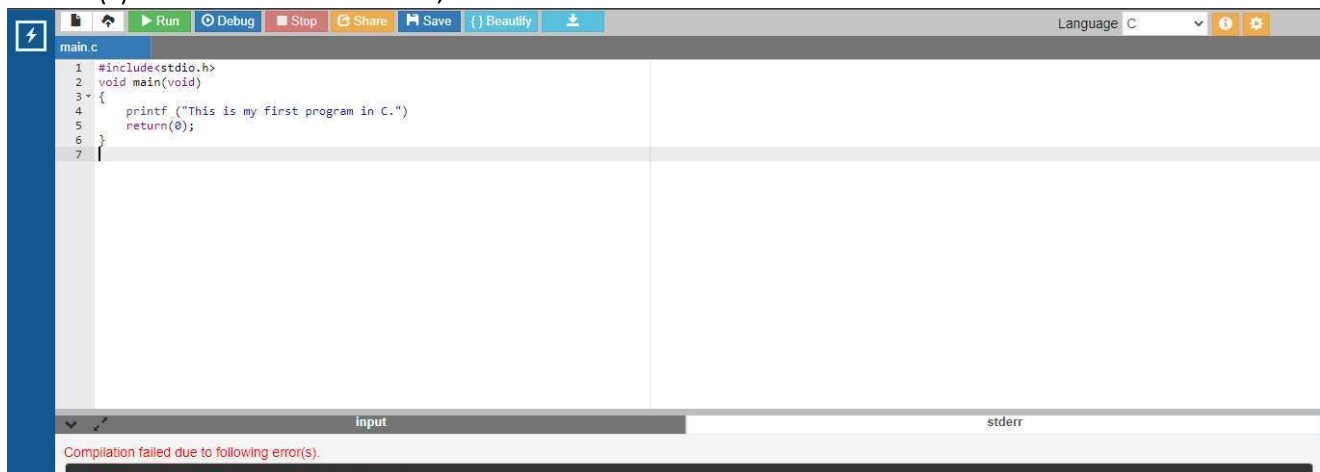
The screenshot shows the same C compiler IDE with the following code in `main.c`:

```
1 #include<stdio.h>
2 void main(void)
3 {
4     printf ("This is my first program in C.");
5     return(0);
6 }
7
```

The output window shows the following warning and successful execution:

```
main.c:5:11: warning: 'return' with a value, in function returning void
5 |     return(0);
  |     ^
main.c:2:6: note: declared here
2 | void main(void)
  | ~~~~~
This is my first program in C.
...Program finished with exit code 0
Press ENTER to exit console.
```

(c) Remove the semicolon ‘;’



The screenshot shows the same C compiler IDE with the following code in `main.c`:

```
1 #include<stdio.h>
2 void main(void)
3 {
4     printf ("This is my first program in C.")
5     return(0);
6 }
7
```

The output window shows the following error:

```
Compilation failed due to following error(s).
```

(d) Erase any one of the braces '{' or '}'



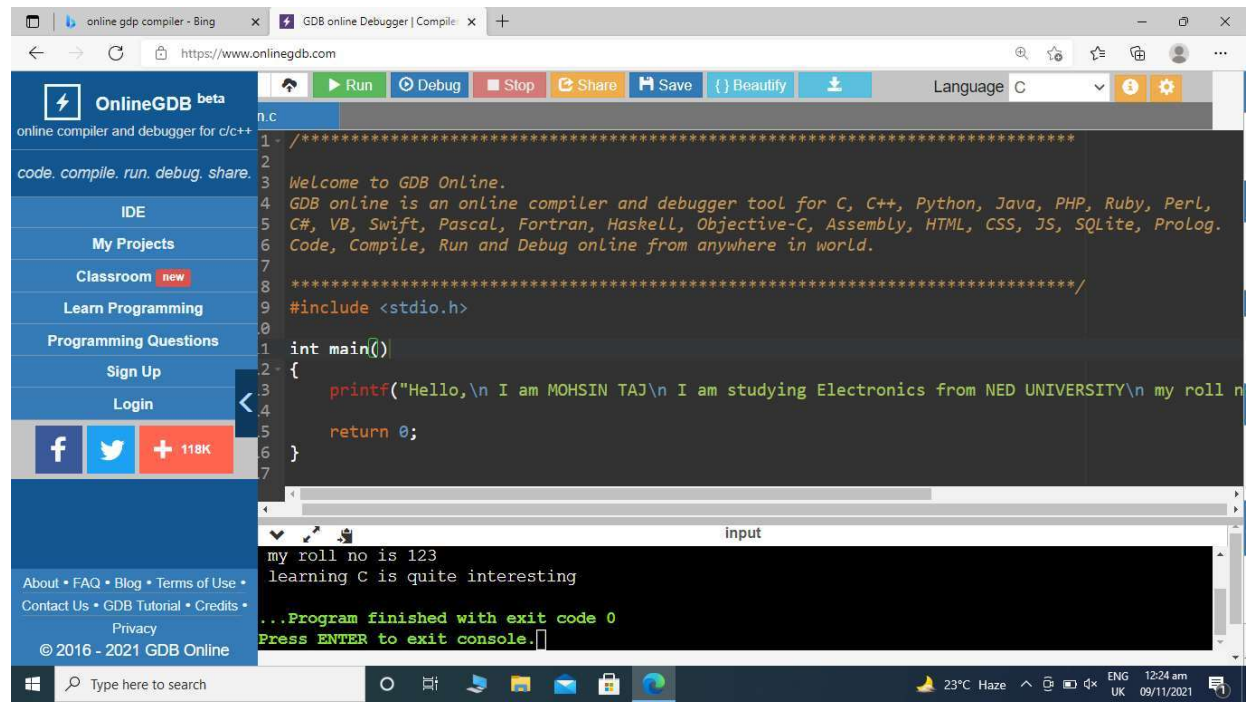
The screenshot shows an online C compiler interface. The code in the editor is:

```
1 #include<stdio.h>
2 void main(void)
3 {
4     printf ("This is my first program in C.")
5     return(0);
6 }
```

The compiler has failed with the following errors:

```
main.c:4:46: error: expected ';' before 'return'
4 |     printf ("This is my first program in C.")
  |                                         ^
  |                                         ;
5 |     return(0);
  |     ~~~~~
main.c:5:5: error: expected declaration or statement at end of input
5 |     return(0);
  |     ~~~~~
```

HOMEWORK:Write your introduction in 5 sentences (In one printf statement)?



The screenshot shows the OnlineGDB website interface. The code in the editor is:

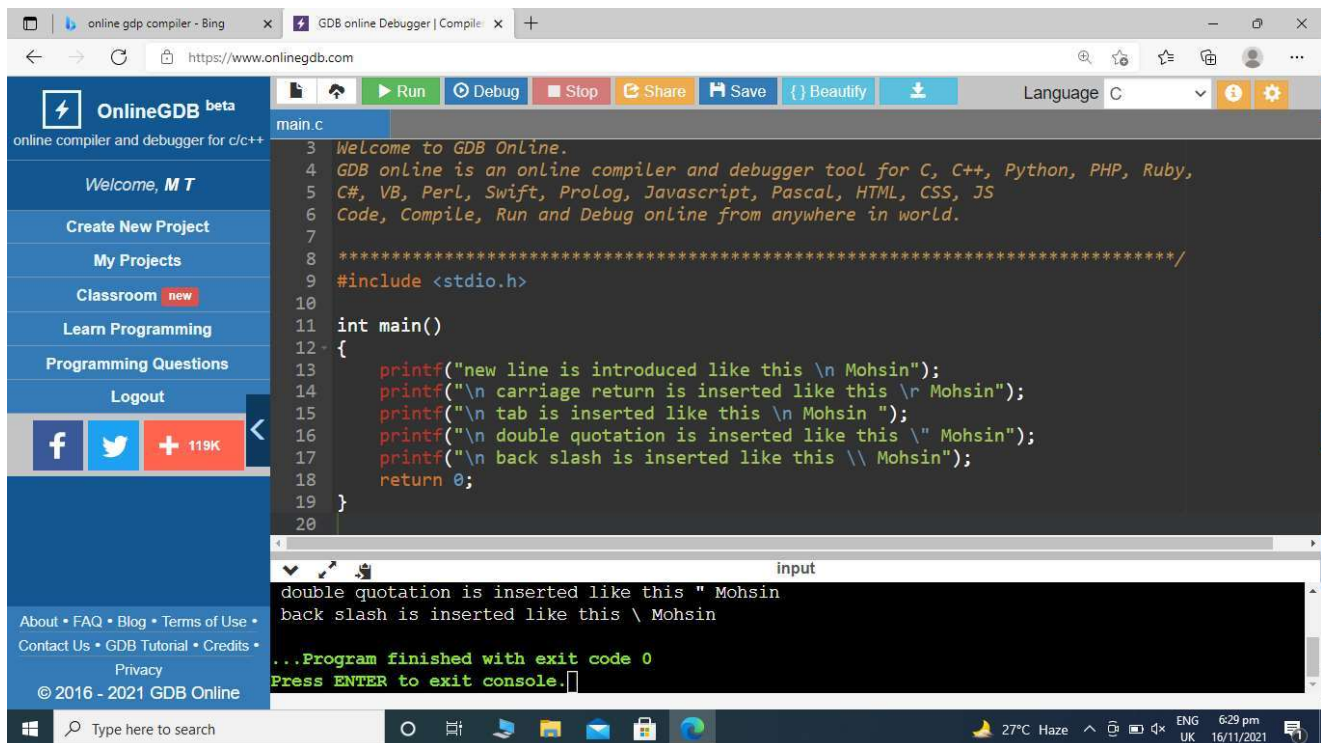
```
1 //*****
2
3 Welcome to GDB Online.
4 GDB online is an online compiler and debugger tool for C, C++, Python, Java, PHP, Ruby, Perl,
5 C#, VB, Swift, Pascal, Fortran, Haskell, Objective-C, Assembly, HTML, CSS, JS, SQLite, Prolog.
6 Code, Compile, Run and Debug online from anywhere in world.
7
8 *****/
9 #include <stdio.h>
10
11 int main()
12 {
13     printf("Hello,\n I am MOHSIN TAJ\n I am studying Electronics from NED UNIVERSITY\n my roll n
14
15     return 0;
16 }
```

The output of the program is:

```
my roll no is 123
learning C is quite interesting
...Program finished with exit code 0
Press ENTER to exit console.
```

LAB #02

1. Write a program which shows the function of each escape sequence character.



The screenshot shows the OnlineGDB website interface. The left sidebar contains navigation links: Welcome, M T, Create New Project, My Projects, Classroom (new), Learn Programming, Programming Questions, and Logout. The main area displays a C program in a dark-themed editor. The program includes a welcome message and several printf statements demonstrating escape sequences: \n (new line), \r (carriage return), \t (tab), \" (double quotation), and \\ (back slash). The program is named 'main.c' and is set to C language. The output window shows the execution results, including the printed messages and the exit code 0.

```
3 Welcome to GDB Online.
4 GDB online is an online compiler and debugger tool for C, C++, Python, PHP, Ruby,
5 C#, VB, Perl, Swift, Prolog, Javascript, Pascal, HTML, CSS, JS
6 Code, Compile, Run and Debug online from anywhere in world.
7
8 *****/
9 #include <stdio.h>
10
11 int main()
12 {
13     printf("new line is introduced like this \n Mohsin");
14     printf("\n carriage return is inserted like this \r Mohsin");
15     printf("\n tab is inserted like this \t Mohsin ");
16     printf("\n double quotation is inserted like this \" Mohsin");
17     printf("\n back slash is inserted like this \\ Mohsin");
18     return 0;
19 }
20
```

input

```
double quotation is inserted like this " Mohsin
back slash is inserted like this \ Mohsin
...Program finished with exit code 0
Press ENTER to exit console.
```

2. Write down C statements for the following operations:

a) $Z = 4.2(x+y)5/z - 0.52x/(y+z)$

```

main.c
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int
5 main ()
6 {
7     double x, y, z;
8     int a;
9     a = (4.2 * (x + y) * 5 / z - 0.52 * x / (y + z));
10    printf ("%d", a);
11 }
12

...Program finished with exit code 0
Press ENTER to exit console.

```

b) $X = a^2 + 2ab + b^2$

```

main.c
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int
5 main ()
6 {
7     int a = 5 / 9;
8     float b = 5.0 / 9;
9     printf ("%d,%f", a, b);
10 }
11

0,0.555556
...Program finished with exit code 0
Press ENTER to exit console.

```

3. What will be the output of the mix mode use of integers and float.

A = 5 / 9 ;

B = 5 . 0 / 9 ;

Printf ("%f,%f",a,b);

```
main.c
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int
5 main ()
6 {
7     int a = 5;
8     printf ("%d", ++a);
9     printf ("\n%d", a++);
10 }
11
```

6
5
...Program finished with exit code 0
Press ENTER to exit console.

4. What will be the output if a=5,
Printf("%d",++a);
Printf("%d",a++);

5. Write some simple statements for the use of logical and relational operators.

```
main.c
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int
5 main ()
6 {
7     double i = (12 / 5);
8     for (i = 0; i <= 10; i++)
9         printf ("\n%f", i);
10 }
11
```

0.000000
1.000000
2.000000
3.000000
4.000000
5.000000
6.000000
7.000000
8.000000
9.000000
10.000000
...Program finished with exit code 0
Press ENTER to exit console.

6. Point out the errors, if any, in the following C statements:

```
main.c
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int
5 main ()
6 {
7     float r, h, vol_of_cylinder;
8     system ("cls");
9     3.14 * r * r * h = vol_of_cylinder;
10    printf ("%f", vol_of_cylinder);
11    return 0;
12 }
13
```



```
main.c
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int
5 main ()
6 {
7     float r, h, volume;
8     system ("cls");
9     3.14 * r ^ 2 * h = volume;
10    printf ("%f", volume);
11    return 0;
12 }
13
```

input stderr

Compilation failed due to following error(s).

```
main.c:9:11: error: invalid operands to binary ^ (have 'double' and 'float')
9 |     3.14 * r ^ 2 * h = volume;
  |               ^
  |               |
  |               |
  |               float
  |               double
```

- a) $3.14 * r * h = \text{Vol_of_Cyl}$;
- b) $\text{volume} = 3.14 * r^2 * h$;

HOMEWORK 1: Write a program for Percentage and Grade Evaluation of 3 subjects?

```
main.c
1 #include <stdio.h>
2 #include <stdlib.h>
3 int main ()
4 {
5     int eng, math, sci, sum;
6     float avg;
7     printf ("Enter your marks in English:");
8     scanf ("%d", &eng);
9     printf ("Enter your marks in Mathematics:");
10    scanf ("%d", &math);
11    printf ("Enter your marks in Science:");
12    scanf ("%d", &sci);
13    sum = eng + math + sci; // Where sum= Sum of 3 subject's percentages
14    avg = sum / 3; // Where avg= Average of 3 subject's percentages
15
16    if (avg >= 80)
17    {
18        printf ("You got A-ONE GRADE, Your Percentage is %f", avg);
19    }
20    else if (avg >= 70 && avg < 80)
21    {
22        printf ("You got A GRADE, Your Percentage is %f", avg);
23    }
24    else
25    {
26        printf ("You got B-GRADE, Your Percentage is %f", avg);
27    }
28    return 0;
29 }
```

HOMEWORK 2: Write a program for insurance coverage of Male\Female and Married\Unmarried candidates?



The image shows a C program in a code editor and its execution in a console. The code is a program to determine insurance eligibility based on age, marital status, and gender. The console shows the program being run with input: age 25, married (n), and male (m), resulting in 'YOU ARE ELIGIBLE'.

```
1 #include <stdio.h>
2
3 int main()
4 {
5     int age;
6     char marital_status, Gender_Code;
7
8     printf("Enter your age: ");
9     scanf("%d", &age);
10
11     printf("Are You Married:(Y/N) \n");
12     scanf(" %c", &marital_status);
13
14     printf("Enter your Gender: (M/F) ");
15     scanf(" %c", &Gender_Code);
16
17     if (marital_status=='Y' || 'y')
18     {
19         printf("YOU ARE ELIGIBLE");
20     }
21
22     else if (age>=30 & marital_status=='N' || 'n' & Gender_Code=='M' || 'm')
23     {
24         printf("YOU ARE ELIGIBLE");
25     }
26     else if (age>=25 & marital_status=='N' || 'n' & Gender_Code=='F' || 'f')
27     {
28         printf("YOU ARE ELIGIBLE");
29     }
30     else
31     {
32         printf("NOT ELIGIBLE");
33     }
```

input

```
Enter your age: 25
Are You Married: (Y/N)
n
Enter your Gender: (M/F) m
YOU ARE ELIGIBLE

...Program finished with exit code 0
Press ENTER to exit console.
```