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3. A certain type of steel is graded according to the following conditions.

1. Hardness of the steel must be greater than 50
2. Carbon content of the steel must be less than 0.7
3. Tensile strength must be greater than 5600

The grades awarded are as follows:

- Grade is 10 if all three conditions are met
- Grade is 9 if conditions (1) and (2) are met
- Grade is 8 if conditions (2) and (3) are met
- Grade is 7 if conditions (1) and (3) are met
- Grade is 6 if only one condition is met
- Grade is 5 if none of the three conditions are met

Write a program to display the grade of the steel, based on the values of hardness, carbon content and tensile strength of the steel, given by the user.

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

```
int main()
```

```
{
```

```
    float hardness , carbon , tstrength;
```

```
    int h_flag=0, c_flag=0, t_flag=0;
```

```
    int grade;
```

```
    printf("Enter the value of hardness of the steel: ");
```

```
    scanf("%f", &hardness);
```

```
    printf("Enter the value of carbon content in the steel: ");
```

```
    scanf("%f", &carbon);
```

```
    printf("Enter the value of tensile strength of the steel: ");
```

```
    scanf("%f", &tstrength);
```

```
    if (hardness > 50)
```

```
    {
```

```
        h_flag = 1;
```

```
    }
```

```
    if (carbon < 0.7)
```

```
    {
```

```
        c_flag = 1;
```

```
    }
```

```
    if (tstrength > 5600)
```

```
    {
```

```
        t_flag = 1;
```

```
}

if(h_flag == 0 && c_flag == 0 && t_flag == 0)
{
    grade = 5;
}

if(h_flag == 1 || c_flag == 1 || t_flag == 1)
{
    grade = 6;
}

if(h_flag == 1 && c_flag == 0 && t_flag == 1)
{
    grade = 7;
}

if(h_flag == 0 && c_flag == 1 && t_flag == 1)
{
    grade = 8;
}

if(h_flag == 1 && c_flag == 1 && t_flag == 0)
{
    grade = 9;
}

if(h_flag == 1 && c_flag == 1 && t_flag == 1)
{
    grade = 10;
}

printf("The grade of steel is: %d", grade);
}
```

OUTPUT:

```
PS D:\Folders\Programs\BinarySearch> gcc 221910307033-Q3.c -o main.exe
PS D:\Folders\Programs\BinarySearch> .\main.exe
Enter the value of hardness of the steel: 0
Enter the value of carbon content in the steel: 0
Enter the value of tensile strength of the steel: 0
The grade of steel is: 6
PS D:\Folders\Programs\BinarySearch> gcc 221910307033-Q3.c -o main.exe
PS D:\Folders\Programs\BinarySearch> .\main.exe
Enter the value of hardness of the steel: 51
Enter the value of carbon content in the steel: 0.5
Enter the value of tensile strength of the steel: 5608
The grade of steel is: 10
PS D:\Folders\Programs\BinarySearch> .\main.exe
Enter the value of hardness of the steel: 40
Enter the value of carbon content in the steel: 0.9
Enter the value of tensile strength of the steel: 4600
The grade of steel is: 5
PS D:\Folders\Programs\BinarySearch> .\main.exe
Enter the value of hardness of the steel: 51
Enter the value of carbon content in the steel: 0.3
Enter the value of tensile strength of the steel: 6600
The grade of steel is: 10
PS D:\Folders\Programs\BinarySearch> .\main.exe
Enter the value of hardness of the steel: 51
Enter the value of carbon content in the steel: 0.6
Enter the value of tensile strength of the steel: 4500
The grade of steel is: 9
```