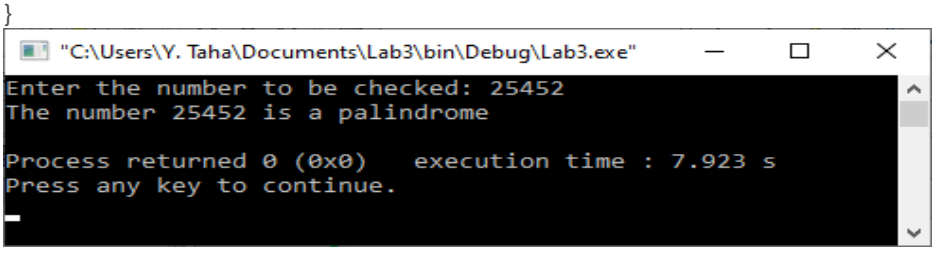
Lab 3

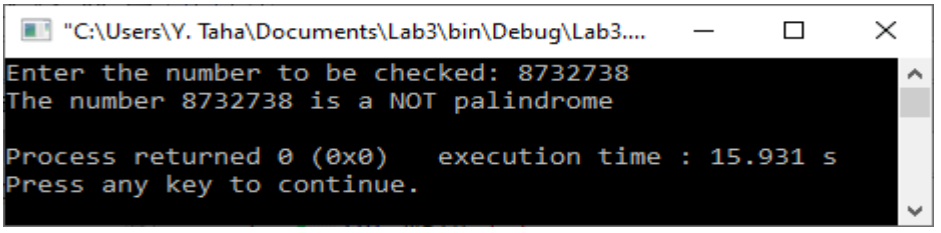
Objectives:

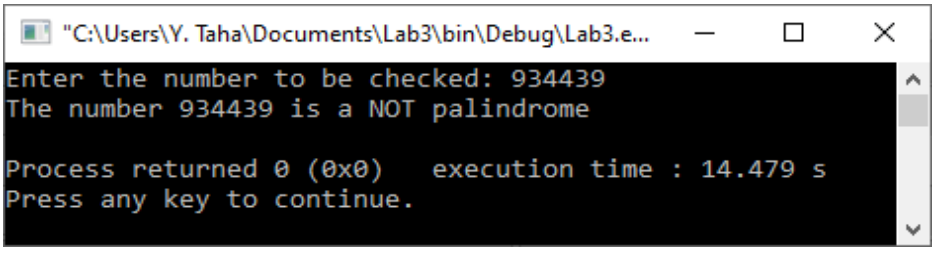
1. Logical operators
2. if condition - else if - Nested if
3. switch statement

1. A **palindrome** is a number or a text phrase that reads the same backward as forward. For example, each of the following five-digit integers is a palindrome: **12321**, **55555**, **45554** and **11611**. Write a program that reads in a **five-digit integer** and determines whether it is a palindrome or not.

```
#include <stdio.h>
void main ( )
{
long x,temp;
int d1, d2, d3, d4, d5;
printf( "Enter the number to be checked: ");
scanf( "%ld", &x);
temp = x;
d1 = x % 10; x = x / 10;
d2 = x % 10; x = x / 10;
d3 = x % 10; x = x / 10;
d4 = x % 10; x = x / 10;
d5 = x;
if ((d1 == d5) && (d2 == d4)) {
        printf( "The number %ld is a palindrome\n", temp);
        }
else {
        printf( "The number %ld is a NOT palindrome\n", temp);
        }
}
```



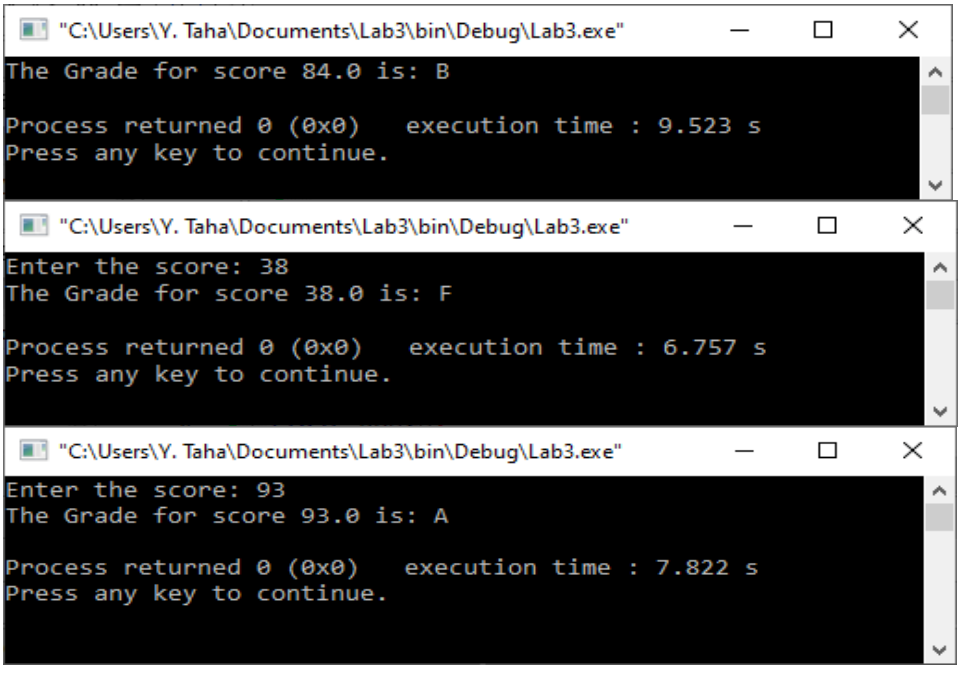




2. Write a program that reads an integer that represents student's grade and then prints the equivalent letter grade.

Score	Grade
score >= 90	A
90 > score >= 80	B
80 > score >= 70	C
70 > score >= 60	D
score < 60	F

```
#include <stdio.h>
void main ( )
{
float score;
char grade;
printf( "Enter the score: ");
scanf( "%f", &score);
if (score >= 90)
        {grade = 'A';}
else if (score >= 80)
        {grade = 'B';}
else if (score >= 70)
        {grade = 'C';}
else if (score >= 60)
        {grade = 'D';}
else
        {grade = 'F';}
printf( "The Grade for score %.1f is: %c\n", score , grade);
}
```

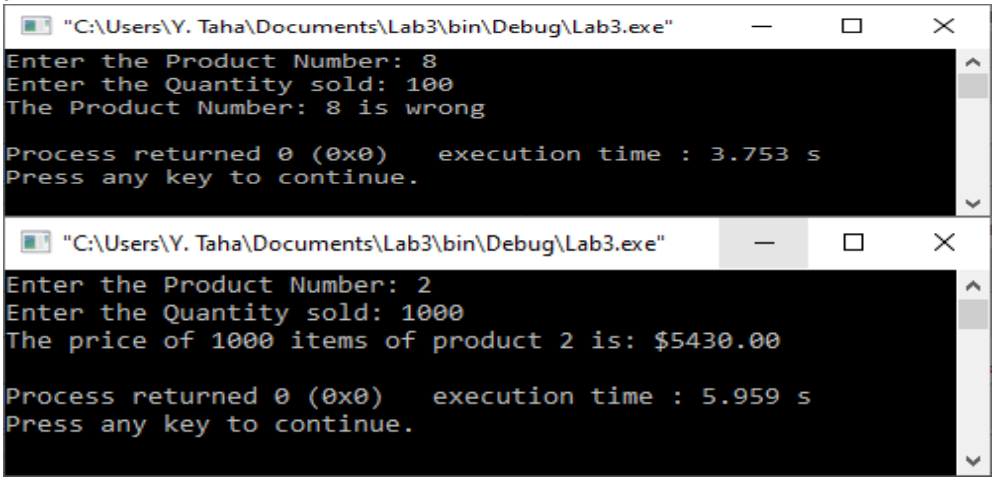


3. An online retailer sells five different products whose retail prices are shown in the following table:

Product number	Retail Price
1	$4.32
2	$5.43
3	$6.54
4	$7.65
5	$8.76

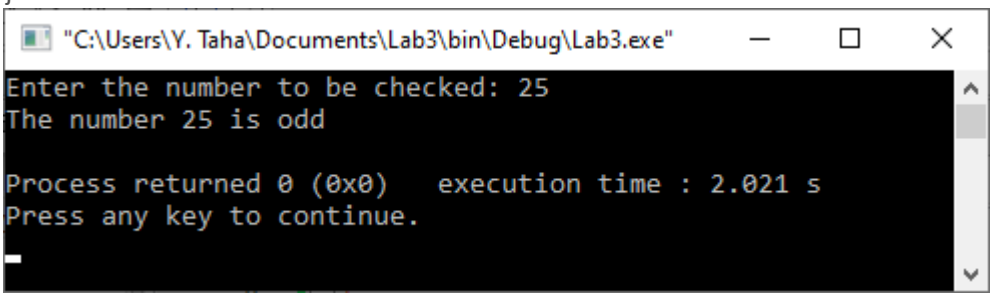
Write a program that reads **Product number** and **Quantity sold** and then prints **total retail price** for the entered product. Your program should use a **switch** statement to help determine the retail price for the entered product.

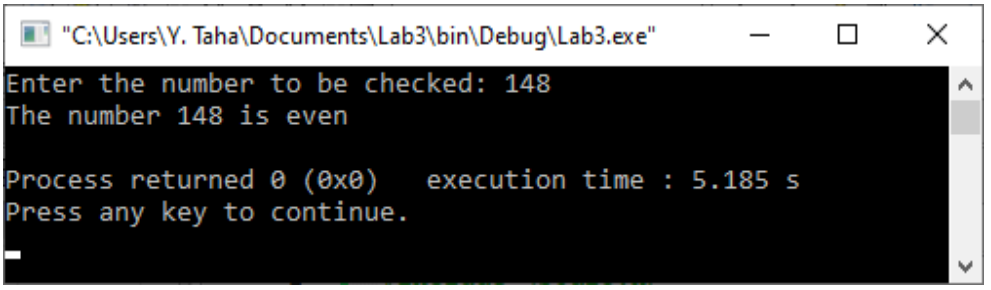
```
#include <stdio.h>
void main ( )
{
int pnumber, quant, flag = 1;
float price;
printf( "Enter the Product Number: ");
scanf( "%d", &pnumber);
printf( "Enter the Quantity sold: ");
scanf( "%d", &quant);
switch (pnumber) {
        case 1:
                price = quant * 4.32; break;
        case 2:
                price = quant * 5.43; break;
        case 3:
                price = quant * 6.54; break;
        case 4:
                price = quant * 7.65; break;
        case 5:
                price = quant * 8.76; break;
        default:
                flag = 0;
         }
if (flag == 1) {
         printf( "The price of %d items of product %d is: $%.2f\n", quant, pnumber, price);}
else {
         printf( "The Product Number: %d is wrong\n", pnumber);}
}
```



4. Write a program that reads an integer and determines and prints whether it is odd or even.

```
#include <stdio.h>
int main ( )
{
int n;
printf( "Enter the number to be checked: ");
scanf( "%d", &n);
if ( n % 2 == 0) {
        printf( "The number %d is even\n", n);
        }
else {
        printf( "The number %d is odd\n", n);
        }
return 0;
}
```





Assignment:

1. Write a program that reads in three integers and then determines and prints the **largest** and the **smallest** integers in the group.

   Sample Run:
   Input three integers: 4 5 3
   5 is the largest, 3 is the Smallest

2. Write a C program to read the **quantity**, **unit pric**e and **discount type** for any item. Your program will calculate the net Price according to the following table and then print out the quantity, unit price, discount type, net price.

Discount Type	Discount
1	10%
2	15%
Others	5%

Good Luck,,,