

The second serie (N°02)

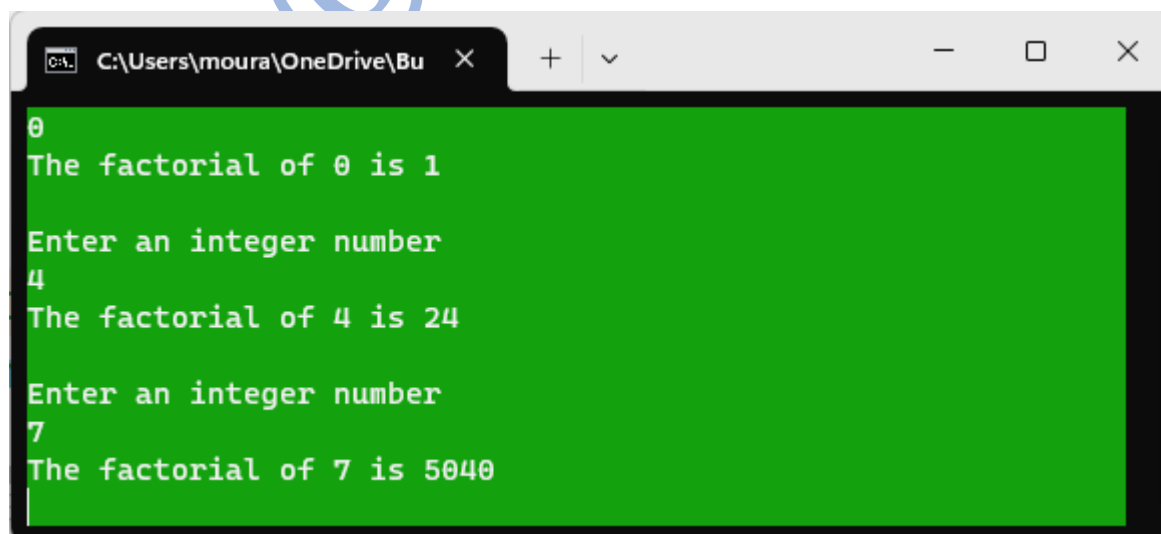
Solution

Exercise 04 :

1) Here is a pascal program that calculates the factorial of a user-entered integer.

```
Program factorial;  
var i,x,fact:integer;  
Begin  
writeln('Enter an integer number'); readln(x);  
fact:=1;  
For i:=1 to x do  
begin  
fact:=fact*i;  
end;  
writeln('The factorial of ',x,' is ',fact);  
readln;  
end.
```

After program running, here's the display:



```
C:\Users\moura\OneDrive\Bu > 0  
The factorial of 0 is 1  
  
C:\Users\moura\OneDrive\Bu > Enter an integer number  
4  
The factorial of 4 is 24  
  
C:\Users\moura\OneDrive\Bu > Enter an integer number  
7  
The factorial of 7 is 5040  
C:\Users\moura\OneDrive\Bu >
```

- We notice that the program doesn't display the result of 8! and more (using Turbo Pascal), because the value of the **integer** type must be between **-32768** and **32767**.

- Solution:

Solution: To overcome this problem, change the variable type of "fact" from "**integer**" to "**longint**", "**real**" or "**extended**".

Reminder:

integer :(Range: -32768 to 32767)

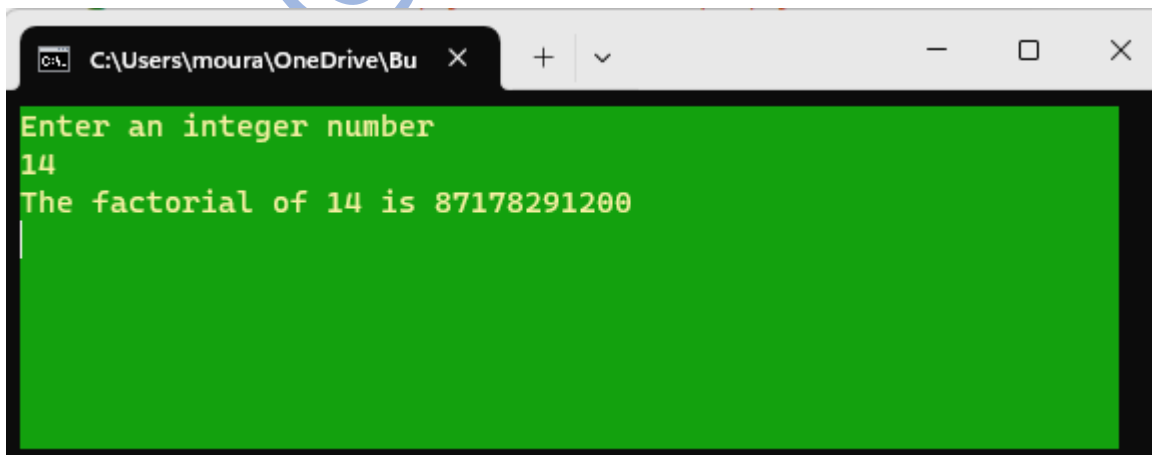
longint :(Range: -2147483648 to 2147483647)

real :(Range: Approximately 1.5×10^{-45} to 3.4×10^{38})

extended :(Represents an extended-precision floating-point number)

```
Program factorial;
var i,x:integer;
fact: real ;
Begin
writeln('Enter an integer number'); readln(x);
fact:=1;
For i:=1 to x do
begin
fact:=fact*i;
end;
writeln('The factorial of ',x,' is ',fact);
readln;
```

After program running, here's the display:



The screenshot shows a Turbo Pascal window with a green background. The text displayed is as follows:

```
C:\Users\moura\OneDrive\Bu x + v - □ ×
Enter an integer number
14
The factorial of 14 is 87178291200
```