The second serie (N°02)

Solution

Exercice 05 :

1) Here is a pascal program that calculates the calculates the Exponential Series defined by:
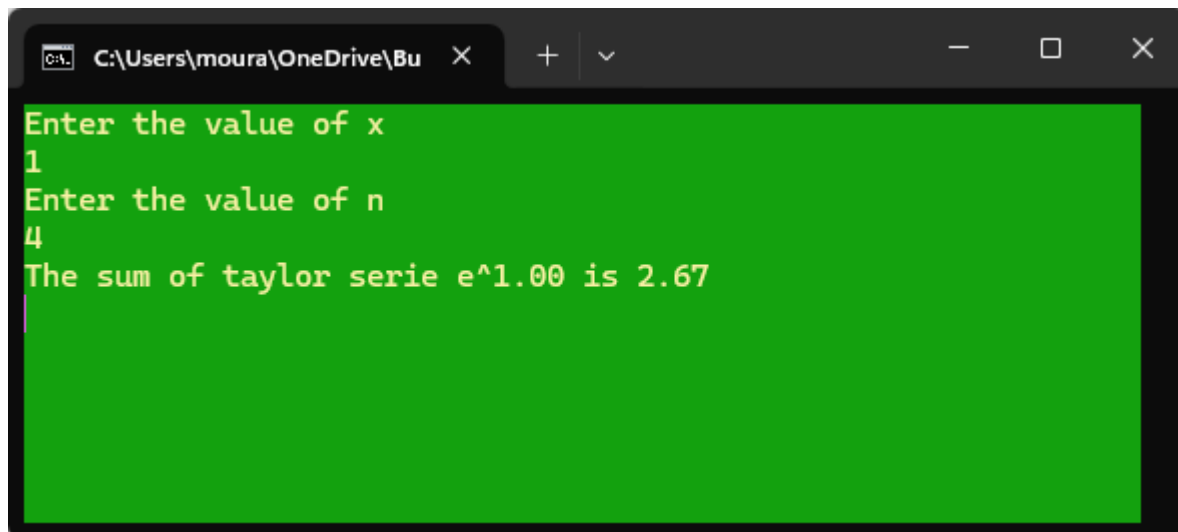
$$e^x = 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \frac{x^4}{4!} \ldots$$

Where the user enters the variable x and the number of terms n.

```
Program s_Taylor;
var x,p,fact,term,sum:real;
n,i:integer;
Begin
writeln('Enter the value of x '); readln(x);
writeln('Enter the value of n '); readln(n);
p:=1; fact:=1; term:=1;  sum:=1;
For i:=1 to (n-1) Do
Begin
p:=p*x;
fact:=fact*i;
term:=p/fact;
sum:=sum+term;
end;
writeln('The sum of taylor serie e^',x:2:2,' is ',sum:2:2);
readln;
end.
```

After program running, here's the display:

An example with $x=1$ and $n=4$

```
Enter the value of x
1
Enter the value of n
4
The sum of taylor serie e^1.00 is 2.67
```