



Level: 1st year of computer science
Course: ADS1

Typical solution TD/TP N° : 03

Academic year:2023/2024
Chapter 2 : I/O

Exercise 1 : (TD)

Write an algorithm that reads the name and birth year of a person, as well as the current year. Then, it displays the age of that person.

```
Algorithm CalculateAge
Var name: string
birthYear, currentYear, age : entier
begin
  write("Name: ")
  read (name)
  write ("Year of birth: ")
  read (birthYear)
  write ("Current year: ")
  read (currentYear)
  age ← currentYear - birthYear
  write ("Hello ", name, ", you are ", age, " years old.")
end.
```

Exercise 2: (TP)

Write a C program that converts a lowercase letter into an uppercase letter.

N. B. : the letters are ordered such that: 'A'<'B'<...<'Z'<...<'a'<'b'<...<'z'

```
#include <stdio.h>
int main() {
  char c_min, c_maj;
  printf("entrer une lettre minuscule\n");
  scanf("%c",&c_min);
  c_maj = c_min-('a'-'A') ;
  printf("%c in uppercase is %c", c_min, c_maj);
}
```

Exercise 3: (TD/TP)

Write an algorithm and its C program to calculate the average of the analysis module.

<pre>Algorithm avg_analysis Var exm,TD , avg: real begin write ("exam: ") read (exm) write ("TD: ") read (TD) avg ← (exm *3+ TD*2)/5 write ("the average =", avg) end.</pre>	<pre>#include <stdio.h> int main() { float cntr,TD ,moy; printf("Contrôle :"); scanf("%f",&cntr); printf("TD:"); scanf("%f",&TD); moy = (cntr *3+ TD*2)/5; printf("la moyenne =%.2f", moy); }</pre>
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Exercise 4: (TD/TP)

Write an algorithm and its C program that receives an angle in degrees, then displays this angle in grades and radians.

N. B. : rad = deg° × π/180 gr=π/200 rad

<pre>Algorithm angle const pi=3.14 Var deg, rad, gr: réel begin write ("enter an angle in degrees ") read (deg) rad ← deg *pi/180 gr ← rad *pi/200 write (deg, "°=", rad, " rad = ", gr, " gr")</pre>	<pre>#include <stdio.h> int main() { const float pi=3.14; float deg, rad, gr; printf("enter an angle in degrees "); scanf("%f",&deg); rad = deg *pi/180; gr = rad *pi/200; printf("%.2f°=%.2f rad =%.2f gr", deg, rad, gr);</pre>
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end.

}

Exercise 5: (TP)

Write a C program that reads the time in seconds and then displays it in hours, minutes and seconds.

```
#include <stdio.h>
int main() {
    int t, h, m, s;
    printf("enter total time in seconds\n");
    scanf("%d",&t);
    s = t % 60;
    m = t /60 % 60;
    h = t /60 /60
    printf("in %d s there are %d:%d:%d", t,h,m,s);
}
```