3. Lab 3

Reading, displaying and saving data

R First, see in the lectures' part of the Laboratory manual (polycopié des TPs), the counterpart chapter of this Lab.

3

1. Enter and save the following code under the name `surf_cir_modif.m` :

surf_cir_modif.m

```
1
2  >> disp('The program will ask you to enter the value of the radius'); %
3  >> radius=input('Enter the radius value ?');
4  >> disp('The program will calculate the area from the value of the radius'); %
5  >> surface=pi*radius^2;  %
6  >> diameter=2*radius;          %
7  >> circumference=pi*diameter; %
8  >> fprintf('The area of the circle of radius %d cm is %f cm2 \n',radius, area); %
9  >> fprintf('The superconference of the circle of radius %d cm is %f cm \n',radius, circumference);
```

   (a) Try to understand the proposed program.
   The program requests user input of the radius value.
   (b) Run your program to test it and correct any input errors if necessary ?.
   (c) Describe the action done at each line of the program using a comment.
   (d) You will do two tests : one test with a radius of integer value, for example, 5 cm and another test with a radius of non-integer value, for example, 5.25 cm. What do you notice about the output of the `fprintf` ? command. Modify your program so that it can handle this case.

2. We want to display the double of the product of two integer values entered on the keyboard. An algorithm is provided below. The latter uses messages to communi-

cate with the user. It displays the operation and the result at the end.
Action : produces times 2.
Variables : `val_1` (First value), `val_2` (Second value), `resul` (The result).
Start of algorithm :
display ("Enter first value")
enter (`val_1`)
display ("Enter second value")
enter (`val_2`)
`resul`←`val_1` * `val_2`* 2
display (`val_1` , "*" , `val_2` , "*" , two , "=" , resul)
End of algorithm :

(a) Write a program with the name `double_prod.m` that applies the above algorithm to solve the problem at hand.
(b) Save the variables `val_1`, `val_2` and `resul` in a file `MyVariables.mat` using the `save` command.
(c) Remove these variables from the workspace using the `clear` command. Verify that these variables are truly deleted using the `whos` command.
(d) Reload the variables `val_1`, `val_2` and `resul` into the workspace using the `load` command. Re-type the command `whos` in the Command Prompt.