TESTING PROCESS

1.- Design test cases for testing the next functions using the white box techniques:

.
**Function** Product(x,y: **integer**): **integer**;
**var**
　　　z: **integer**;
**begin**
　　　z:= 0;
　　　**while** (x<>0) **do**
　　　　　**begin**
　　　　　　　**if** (odd(x)) **then** z:= z+y;
　　　　　　　x:= x **div** 2;
　　　　　　　y:= 2*y
　　　　　**end**;
　　　Prod:= z
**end**;


**Function** MCD(x,y: **integer**): **integer**;
**var**
　　　a,b: **integer**; {x > 0, y > 0}
**begin**
　　　a:= x;
　　　b:= y;
　　　**while** (a<>b) **do**
　　　　　**if** a>b **then** a:= a−b **else** b:= b−a;
　　　MCD:= a
**end**;

2.- Design test cases under the black box approach for an application which input is a positive integer number of three digits and its output is the same number but its digits in inverse order.

3.- The rules, in a certain programming language, to define new identifiers are:
• The maximum length has to be 30 characters long.
• The usable characters are:
　　　Upper or lower cases
　　　Dígits (0–9).
　　　Dashes (−).
• Case sensitive (Upper and lower case are different characters).
• Dash can not be neither in the beginning nor in the end of an identifier but it may be found (consecutively or not) in the middle.

• An identifier must have at least one alphabetic character.
• An identifier can not be a reserved word (if, data, real, . . . ).
Design, for that application, a set of test cases under the black box approach.

4.- Design a set of test cases under the black box approach for testing whether a password is correct or not. The rules are:
• A password must be between 7 and 13 characters long.
The usable characters are:
> Upper or lower cases
> Digits (0–9).
> The special character (%).
• It must have at least two upper or lower cases.
• It must have at least one character different to upper or lower cases.
• the first and last  character have to be upper or lower cases.
• It can not be included in the forbidden word dictionary. (user%10a,user%aa, . . . ).

5.- Design a set of test cases under the black box approach regarding a subprogram that has three input parameters called x,y,z (integer numbers).If  x, y define an interval, this subprogram has to determine the relative position of z with respect to this interval. The possible outputs are:

- Ends: if z is equal to x or y.
- Middle: if z is the middle point of the interval but it does not satisfy the previous condition
- Internal: if z belongs to the interval but it does not satisfy any previous condition.
- External: if z does not belong to the interval.
- Error: if the input is not correct.

6.- Design a set of test cases under the black box approach for testing a program that read the time regarding the next format: hh:mm:ss and determine whether it is correct or not.

7.- Design a set of test cases under the black box approach for testing a program that process a data file containning the student final grades in order to provide the passed student  list. The final grade is the average of the partial ones (the grade is a numerical value within the range  0..10).

Tgrade = Record
> Second_name,First_name: String[20];
> grade1,grade2,grade3,grade4:Real
End;