

TU Dublin - Tallaght Campus
Department of Computing

Software Development 1 Worksheet 4

Topic: Console Input and Branching

Q1 to be uploaded

For all the exercises below:

1. read the problem statement closely
2. identify the inputs and outputs of the program
3. design an algorithm to solve the problem
4. specify the algorithm in pseudocode
5. refine the algorithm to a sufficient level of detail
6. select test data
7. implement the algorithm in Python
8. run the test data through the program checking the results
9. debug the program if necessary

Exercise 1.

Design and develop a program that computes an employee's income tax based on the following criteria:

If the gross pay is less than €50000.00, an allowance of €25000 is given, i.e. no tax is paid on the first €25000, (**assume minimum gross pay is €35000**)

If the gross pay is greater than or equal to €50000.00, an allowance of €20000 is given, i.e. no tax is paid on the first €20000.

A Single person pays 20% tax – code for single is 's'

A Married person pays 23% tax - code for married is 'm'

If any value other than 's' or 'm' is entered, assume a tax rate of 0 for your calculations.

The program should ask the user to enter their employee identification number (**store** this as a String), name, address, marital status, s for single, m for married, and gross pay.

Hint: determine and store the allowance amount first before calculating total tax

The program should then calculate and display the employee's details, name, address, marital status, gross pay, net pay and total tax paid.

In order to improve security, after the previous calculations have been made, allow the user to enter a password and store it in the program. Allow the user to re-enter a password and store that value for confirmation, check if the two passwords entered are the same, and give appropriate messages to the user if they match or do not match.