Python School WB 6

NAME:

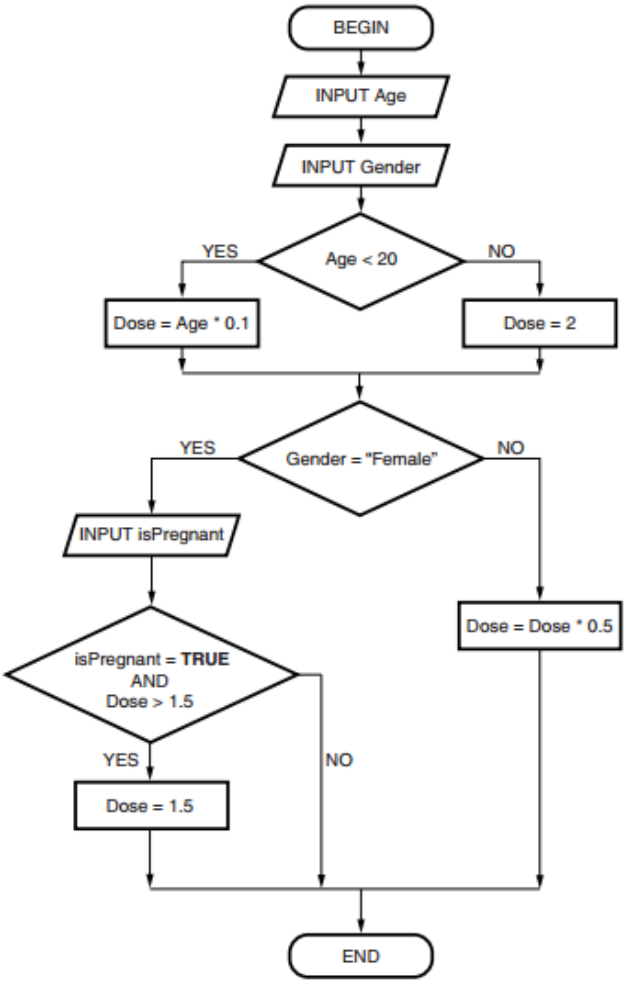
Introduction

In this workbook we are going to look at some of actual pseudocode you could be given in your GCSE Computing exam. You will look at the requirements of the program and create the program in Python.

Main Task 1

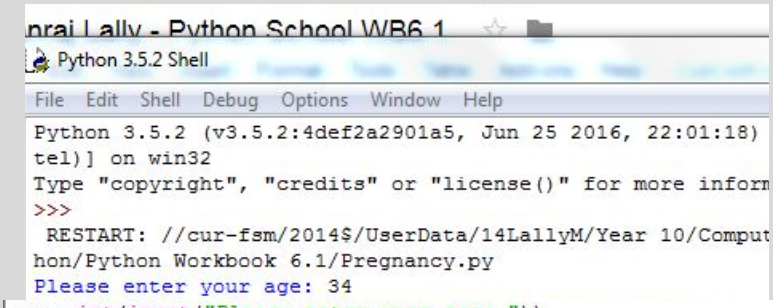
A computer program calculates the correct dose in grams of a type of medicine.

The algorithm used is shown by the flow diagram below.



In the example above the algorithm is provided as a flowchart. Look at the requirements of the program and code it up in Python. You need to screenshot your ANNOTATED code and paste it in the box below. Remember to crop and resize your image.

Python School WB 6



Well here you can see I tried out being an over 20 male and an under 20 pregnant female and you can see how the doses changed.

```
age= int(input("Please enter your age: "))
gender = input("Now please enter your gender. Type male or female:")
if age <20:
    dose = age*0.1
else:
    dose = 2
if gender == "male":
    dose = dose*0.5
if gender == "female":
    isPregnant = input("Are you pregnant? Type y or n:")
    if isPregnant == "y" and dose>1.5:
        dose = 1.5
    if isPregnant == "n":
        quit
print("Your dose should be", dose)
```

Here is my code. I asked the user for age and gender and if they were female, I asked if the user was pregnant. Depending on the answers received, you can see that the code would calculate a suitable dose.

Main Task 2

A free drinks machine in an office provides 20 different drinks.

The machine has a small keypad with keys 0 to 9, OK and CANCEL. It also has a small LCD screen, which can display a short message.

To get a drink, users select an item number between 1 and 20 with the keypad and confirm their choice by pressing OK. If they make a mistake they can press the CANCEL button and start again. If the selection is valid and the drink is available it dispenses the drink. The display screen is used to show suitable short messages throughout the process.

Python School WB 6

In the example above you are not provided with a step by step algorithm. You must read the steps in the paragraph and decide how you are going to break this down into steps. List the steps you will complete below: **It doesn't say do pseudocode so I just listed the steps**

```
Print(Welcome to the drinks machine, choose a drink in range of numbers 1 and 20)
Each number represents different drink
drinkAmounts = 10 for every drinkChoice
If drinkAmounts = 0:
  print(That drink has been sold out, try buying another one)
Else:
  Print ( Are you sure?)
  If drinkChoice > 20:
    print(invalid, try again)
    Restart
  If button = cancel :
    print( You chose to cancel)
    Restart
  If button = ok and drinkChoice < 21:
    print (You have chosen drink number 'drinkChoice')
    Dispense drink
    DrinkAmounts = drinkChoice - 1
    print( Have a nice day)
Restart for next user
```

Look at the requirements of the program and code it up in Python. Your program does not need to have a graphical interface as above. It will be text based like all the other programs you have created, this is called abstraction and modelling. You need to screenshot your ANNOTATED code and paste it in the box below. Remember to crop and resize your image.

Well here is the code. It asks for the user to input numbers for the drink they would like and after it asks them if they are sure they want that drink.
After the user's input, the machine checks if the inputs were valid for example you can see if the number was over 20, the machine had to restart since there were only 20 drinks. Also if the user presses cancel they have a chance to choose their drink again. If both conditions are valid (the drink is between 1 and 20 and the OK button has been pressed), the machine dispenses the drink and says 'Have a nice day' to the user.

Here you can see I tried all combinations. Having the number

invalid with OK and CANCEL and having a valid number with OK and CANCEL

Python School WB 6

Extension 1

Santos is writing a program that guesses the number of goals a team will score in a football match.

The algorithm for his program is shown below:

```
01  CONST Noise = 10
02  INPUT Wins
03  INPUT Losses
04  Goals = 0
05  Net = Wins - Losses
06  WHILE Net > Noise
07    Goals = Goals + 1
08    Net = Net - Noise
09  END WHILE
10  OUTPUT Goals
```

In the example above the algorithm is provided as pseudocode. Look at the requirements of the program and code it up in Python. You need to screenshot your ANNOTATED code and paste it in the box below. Remember to crop and resize your image.