1811ICT/2807ICT/7001ICT Programming Principles Workshop 2

School of Information and Communication Technology

Griffith University

|  |  |
| --- | --- |
| *Goals* | In this workshop we create interactive scripts. |
| *When* | Week 3 |

# Preparation

Before your workshop class:

* Read this whole document.
* Review the lecture notes sections 1 to 8.
* **Complete the pre-workshop questions posted on the course website**.

# Workshop activities

At any stage, when you are stuck, *ask your workshop instructor*!

## Create and run an interactive script in PyCharm

For this activity you must use the PyCharm IDE, either on the lab PC, using Windows or Mac; or on your own laptop.

Steps:

1. Open the PyCharm IDE.
2. Make a new project:
   1. Choose menu item *File* ▶ *New Project*....
   2. Edit the name and location of the project so that it is called *Hello* and saved on either:

* your network storage drive (typically called H:); or
* your personal storage device that you brought with you.
  1. Click *Create*.

1. Using menu item *File* ▶ *New*... create a new Python File in your project and name it hello.py.
2. Type in *hello.py* the following program:

name = input("What’s your name? ")   
print("Hello, ", name)

1. Save the file and use menu item *Run* ▶ *Run*... and choose *hello.py* to run your program.
2. Your program will run in a pane at the bottom of the window, prompting you to enter your name.

## Problem 1

*Problem:* A tradie needs to estimate how much concrete is needed for a rectangular-sized car park. Write a program that asks the user for the length of the park in metres, the width of the park in metres, and the volume of concrete required in litres per square metre. Calculate and print the total litres of concrete required for the car park. For example, the output should look like this when the program is run:

|  |
| --- |
| Length of park (m): 45.5  Width of park (m): 35  Litres per square metre: 5.1  Litres required = 8121.749999999999 |

*Testing:* Test your program by checking the output for the following two scenarios:

* Length of park: 30.2m; Width of park: 10m; Litres per square metre: 6.6
* Length of park: 20m; Width of park: 5m; Litres per square metre: 4.5

## Problem 2

*Problem:* A programmer would like to calculate the hourly wage of a job. Write a program that asks the user for the number of hours worked per day, number of days worked in a week, and the annual salary. Calculate and print the programmer’s hourly wage with the assumption that there are 52 weeks in a year. For example, the output should look like this when the program is run:

Number of hours worked per day: 7.5

Number of days worked in a week: 5

Annual salary: 60000

Hourly wage = $30.76923076923077

*Testing:* Test your program by checking the output for the following two scenarios:

* Number of hours worked per day: 8; Number of days worked in a week: 3; Annual salary: 89920.15
* Number of hours worked per day: 5; Number of days worked in a week: 5; Annual salary: 49344.85

## Problem 3

*Problem:* A primary school needs to arrange their students to sit for the National Assessment Program − Literacy and Numeracy test in multiple exam halls at Griffith University. Each school class has 25 students. A big exam hall can accommodate 45 students, and a small exam hall can accommodate 22 students. Write a program for the school to calculate how many full classes can be accommodated given the input numbers of the number of big exam halls and small exam halls. For example, the output should look like this when the program is run:

How many big exam halls? 10

How many small exam halls? 20

Number of classes = 35

*Testing:* Test your program by checking the output for the following two scenarios:

* Number of big exam halls: 15; Number of small exam halls: 10
* Number of big exam halls: 5; Number of small exam halls: 25



**Can you change the output above and present it in a table format?**