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

School of Information and Communication Technology

Griffith University

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| *Goals* | In this workshop we create interactive scripts. |
| *When* | Workshops from Friday 25 March to Thursday 31 March |
| *Marks* | 3 |
| *Due* | Pre-workshop questions before the start of the above mentioned workshops  Workshop programming problems by 11:59pm on 3 April |

# Preparation

Before your workshop class:

* Read all of this document.
* Review the lecture notes sections 1 to 8.
* **Complete the pre-workshop questions (1 mark) posted on the course website and submit the answers for marking**.

# Workshop activities (2 marks)

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

## Create and run an interactive script in PyCharm

For this 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 the following program:

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

1. Save it, 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 program should look like this when run.

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

*Answer:* copy your code in the space given below and insert screenshots of your program 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

***Copy your code here***

# Matthew Prendergast

# 30th March, 2022 - Problem 1 (Workshop - Week 2)

# Store the user inputs into variables. Cast to a float.

length = float(input("Length of park (m): "))

width = float(input("Width of park (m): "))

litres = float(input("Litres per square metre: "))

# Print the results.

print("Litres required = ", length \* width \* litres)

***Insert your screenshots here***

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## 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 program should look like this when run.

Number of hours worked per day: 7.5

Number of days worked in a week: 5

Annual salary: 60000

Hourly wage = $30.76923076923077

*Answer:* copy your code in the space given below and insert screenshots of your program 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

***Copy your code here***

# Matthew Prendergast

# 30th March, 2022 - Problem 2 (Workshop - Week 2)

# Store the user inputs into variables. Cast to a float.

hours = float(input("Number of hours worked per day: "))

days = float(input("Number of days worked in a week: "))

salary = float(input("Annual salary: "))

# Print the results.

print("Hourly wage = $", salary / (days \* hours \* 52), sep="")

***Insert your screenshots here***

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## 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 big exam halls and small exam halls. For example, the program should look like this when run.

How many big exam halls? 10

How many small exam halls? 20

Number of classes = 35

*Answer:* copy your code in the space given below and insert screenshots of your program 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

***Copy your code here***

# Matthew Prendergast

# 30th March, 2022 - Problem 3 (Workshop - Week 2)

# Set the constant variables for the rooms size and class size.

CLASS\_SIZE = 25

BIG\_HALL = 45

SMALL\_HALL = 22

# Store the user inputs into variables. Cast to a int.

big\_available = int(input("How many big exam halls? "))

small\_available = int(input("How many small exam halls? "))

# Print the results.

print("Number of classes = ", (big\_available \* BIG\_HALL + small\_available \* SMALL\_HALL) // CLASS\_SIZE)

***Insert your screenshots here***

Text

Description automatically generated

Text

Description automatically generated

# Submission and marking

The pre-workshop can be accessed and submitted online using the provided link in the course website. Students get 1 mark if they get >50% in pre-workshop questions, or 0.5 mark if they get 0%-50% in pre-workshop questions, or 0 marks without any attempt.

For workshop tasks, please submit this document with copied codes and inserted screenshots using the provided submission link in the course website. Students get 2 marks if they complete two or more problems correctly, or 1 mark if they complete one problem correctly, or 0 marks without any attempt.