

## # IS1110 Tutorial 1 – Exercises

# =====

### # 0. FILE STRUCTURE AND WORKING WITH PYTHON FILES

# =====

# Create a main folder for your IS1110 work.

# Inside that folder, create a subfolder called Tutorials.

# Inside the Tutorials folder, create a subfolder called Tutorial\_1.

# Create a Python file and save it to your Tutorial\_1 subfolder in the Tutorials folder.

# Copy the code from this exercise file into your Python file and complete the coding exercises.

# =====

### # 1. HELLO WORLD

# =====

```
print("Hello World!")
```

# Try these personalised versions:

```
print("My name is ____") # Fill in your name
```

```
print("I am ____ years old") # Fill in your age
```

# =====

### # 2. VARIABLES AND SIMPLE MATH

# =====

# Variables are like labelled boxes that store information

```
name = "Alex"
```

```
age = 15
```

```
print("Hello, my name is", name)
```

```
print("I am", age, "years old")
```

```
print("Next year I will be", age + 1, "years old")
```

# Try creating your own variables with your name and age

# Inventor exercise

# -----

# The following steps give the name and birth year of a famous inventor.

# (a) Declare the variable `first_name` and assign it the value "Thomas".

# (b) Declare the variable `middle_name` and assign it the value "Alva".

# (c) Declare the variable `last_name` and assign it the value "Edison".

# (d) Declare the variable `year_of_birth` and assign it the value 1847.

# (e) Display the phrase "The year of birth of" followed by the inventor's full name, followed by "is", and the inventor's year of birth.

# Based on: Schneiders, 2016, p. 62

```
first_name = _____
```

```
...
```

# Try changing the values of the variables and run the code again

# =====

### # 3. BASIC CALCULATIONS

# =====

# Direct calculations with numbers

```
print(12 + 3) # Addition
```

```
print(10 - 2) # Subtraction
```

```
print(4 * 5) # Multiplication
```

```
print(20 / 4) # Division
```

```
# Using variables in calculations
```

```
a = 3
b = 4
c = a + b
print("a =", a)
print("b =", b)
print("c = a + b =", c)
```

```
# Try other operations
```

```
d = a * b
print("a * b =", d)
e = b - a
print("b - a =", e)
f = b / a
print("b / a =", f)
```

```
# Create a Distance calculator
```

```
# -----
```

```
# Declare variables for speed (in km/h) and time elapsed (in hours)
# Assign values to these variables (e.g., 50 for speed and 14 for time elapsed)
# Calculate the distance travelled (distance = speed x time elapsed)
# Print the distance
# Based on: Schneiders, 2016, p. 41
```

```
speed = _____
...
```

```
# Try changing the speed and time values to see how distance changes
```

```
# =====
# 4. USER INPUT
# =====
```

```
# Basic interactive input
```

```
name = input("What is your name? ")
age = input("How old are you? ")
print("Hello", name, "you are", age, "years old!")
```

```
# Check the type of each variable
```

```
print(type(name))
print(type(age))
```

```
# What do you notice?
```

```
# Converting input to numbers for maths
```

```
age = int(input("How old are you? "))
print("In 10 years you will be", age + 10, "years old!")
```

```
# Distance from a Storm Calculator
```

```
# -----
```

```
# If n is the number of seconds between lightning and thunder,
# the storm is n/5 miles away. Write a program that requests the number
# of seconds between lightning and thunder and reports the distance from the storm
# rounded to two decimal places.
```

```
# Sample output:
```

```
# Enter number of seconds between lightning and thunder: 1.25
# Enter your age: 20
# Enter your resting heart rate: 70
```

```
# Distance from storm: 0.25 miles
```

```
# Based on: Schneiders, 2016, p. 62
```

```
number_of_seconds = _____  
...
```

```
# =====  
# 5. DECISION MAKING WITH IF STATEMENTS (OPTIONAL)  
# =====
```

```
# Age-based decisions
```

```
age = int(input("How old are you? "))  
if age < 10:  
    print("You are still quite young!")  
else:  
    print("You're growing up fast!")
```

```
# Colour preference example
```

```
favourite_colour = input("What is your favourite colour? ")  
if favourite_colour == "blue":  
    print("That's my favourite too!")  
else:  
    print(favourite_colour, "is a lovely colour!")
```