



CPIT 110

Instructor Manual

For **50** Minutes Lectures

Week 3

15/9/2019 – 19/9/2019

Chapter 2

Elementary Programming

This Week Events	– Lab #2 (Chapter 1 – Part 2)
Next Week Events	– National Day (Vacation) [Sunday-Monday 22-23/9/2019] – Lab #3 (Chapter 2 – Part 1)

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Instructor Manual – Lecture #1 in Week 3

Chapter	2. Elementary Programming
Number of Lectures	6 (50 minutes / Lecture)
Lecture	1 of 6
Slides	1 - 36
Date	Sunday 15/09/2019

Week 3	Lecture 1 of 6
	Slides 1 - 36

Topics to Be Covered

- ❖ 2.1. Introduction
- ❖ 2.2. Writing a Simple Program

Learning Objectives

Learning Outcomes	Topics
– To write programs that perform simple computations.	2.2. Writing a Simple Program

Exercises

❖ 2.2. Writing a Simple Program

1. Show the printout (output) of the following code:

```
1 width = 5.5
2 height = 2
3 print("area is", width * height)
```

2. Translate the following algorithm into Python code:

```
1 Use a variable named miles with initial value 100.
2 Multiply miles by 1.609 and assign it to a variable named kilometers.
3 Display the value of kilometers.
```

What is the value of kilometers after Step 3?

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Instructor Manual – Lecture #2 in Week 3

Chapter	2. Elementary Programming
Number of Lectures	6 (50 minutes / Lecture)
Lecture	2 of 6
Slides	37 - 62
Date	Tuesday 17/09/2019

Week 3	Lecture 2 of 6
	Slides 37 - 62

Topics to Be Covered

- ❖ 2.3. Reading Input from the Console
- ❖ 2.4. Identifiers
- ❖ 2.5. Variables, Assignment Statements, and Expressions [...]
 - Variables
 - Assignment Statements

Learning Objectives

Learning Outcomes	Topics
– To obtain input from a program's user by using the input function.	2.3. Reading Input from the Console
– To use identifiers to name elements such as variables and functions.	2.4. Identifiers
– To assign data to variables.	2.5. Variables, Assignment Statements, and Expressions

Exercises

❖ 2.3. Reading Input from the Console

1. How do you write a statement to prompt (ask) the user to enter a numeric value?
2. What happens if the user enters `5a` when executing the following code?

```
1 radius = eval(input("Enter a radius: "))
```

3. How do you break a long statement into multiple lines?

❖ 2.4. Identifiers

1. Are Python identifiers case-sensitive?
2. Which of the following identifiers are valid? Which are Python keywords?

`miles`, `Test`, `a+b`, `b-a`, `4#R`, `$4`, `#44`, `apps`, `if`, `elif`, `x`, `y`, `radius`

❖ 2.5. Variables, Assignment Statements, and Expressions

1. What is the naming convention for variables?
2. What is wrong in the following statement?

```
1 2 = a
```

3. What is `x`, `y`, and `z` after the following statement?

```
1 x = y = z = 0
```

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Instructor Manual – Lecture #3 in Week 3

Chapter	2. Elementary Programming
Number of Lectures	6 (50 minutes / Lecture)
Lecture	3 of 6
Slides	63 - 93
Date	Thursday 19/09/2019

Week 3	Lecture 3 of 6
	Slides 63 - 93

Topics to Be Covered

- ❖ 2.5. Variables, Assignment Statements, and Expressions [...Continued]
 - Expressions
- ❖ 2.6. Simultaneous Assignments
- ❖ 2.7. Named Constants
- ❖ 2.8. Numeric Data Types and Operators [...]
 - Numeric Data Types & Numeric Operators
 - Unary Operator & Binary Operator
 - Float Division (/) Operator & Integer Division (//) Operator
 - Exponentiation (**) Operator & Remainder (%) Operator

Learning Objectives

Learning Outcomes	Topics
– To perform simultaneous assignment	2.6. Simultaneous Assignments
– To define named constants	2.7. Named Constants
– To use the operators +, -, *, /, //, %, and **.	2.8. Numeric Data Types and Operators

Exercises

❖ 2.5. Variables, Assignment Statements, and Expressions

1. What is an expression?
2. What is the assignment operator?
3. What is wrong in the following code? And fix it:

```
1 count = count + 1
2 print(count)
```

4. What is wrong in the following code? And fix it:

```
1 interestRate = 0.05
2 interest = interestrate * 45
3 print(interest)
```

❖ 2.6. Simultaneous Assignments

1. Assume that `a = 1` and `b = 2`. What is `a` and `b` after the following statement?

```
1 a, b = b, a
```

❖ 2.7. Named Constants

1. What are the benefits of using constants?
2. What is the constant naming convention?

❖ 2.8. Numeric Data Types and Operators

1. What are the results of the following expressions?

Expression	Result
<code>42 / 5</code>	
<code>42 // 5</code>	
<code>42 % 5</code>	
<code>40 % 5</code>	
<code>1 % 2</code>	
<code>2 % 1</code>	
<code>45 + 4 * 4 - 2</code>	
<code>45 + 43 % 5 * (23 * 3 % 2)</code>	
<code>5 ** 2</code>	
<code>5.1 ** 2</code>	