# CPIT 110

## Instructor Manual

**For 50 Minutes Lectures**

# Week 4

## 22/9/2019 – 26/9/2019

### Chapter 2
### Elementary Programming

| This Week Events | − National Day (**Vacation**) [Sunday-Monday 22-23/9/2019]<br>− Lab #3  (Chapter 2 – Part 1) |
|---|---|
| **Next Week Events** | − Lab #4 (Chapter 2 – Part 2) |

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## CPIT 110
## Instructor Manual – Lecture #1 in Week 4

| Chapter | **2. Elementary Programming** |
|---|---|
| Number of Lectures | 6 (50 minutes / Lecture) |
| Lecture | 4 of 6 |
| Slides | 94 - 120 |
| Date | Tuesday 24/09/2019 |

| Week 4 | Lecture 4 of 6 |
|---|---|
| | Slides 94 - 120 |

## Topics to Be Covered

❖ **2.8. Numeric Data Types and Operators […Continued]**
   • Program 6 : Convert Time
❖ **2.9. Evaluating Expressions and Operator Precedence**
❖ **2.10. Augmented Assignment Operators**

## Learning Objectives

| Learning Outcomes | Topics |
|---|---|
| − To use the operators +, -, *, /, //, %, and **. | 2.8. Numeric Data Types and Operators |
| − To write and evaluate numeric expressions. | 2.9. Evaluating Expressions and Operator Precedence |
| − To use augmented assignment operators to simplify coding. | 2.10. Augmented Assignment Operators |

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## Exercises

❖ **2.8. Numeric Data Types and Operators**

1. If today is Tuesday, what day of the week will it be in 100 days?

2. What is the result of 25 / 4? How would you rewrite the expression if you wished the result to be an integer number?

❖ **2.9. Evaluating Expressions and Operator Precedence**

1. How would you write the following arithmetic expression in Python?

$$\frac{4}{3(r+34)} + 9(a+bc) + \frac{53+d(2+a)}{a+bd}$$

2. Suppose m and r are integers. Write a Python expression for $mr^2$. What is x, y, and z after the following statement?

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

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

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

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

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

❖ **2.10. Augmented Assignment Operators**

1. Assume that a = 1, and that each expression is independent. What are the results of the following expressions?
   - a += 4
   - a -= 4
   - a %= 4

## CPIT 110
## Instructor Manual – Lecture #2 in Week 4

| | | | |
|---|---|---|---|
| Chapter | **2. Elementary Programming** | **Week** | **Lecture 5 of 6** |
| Number of Lectures | 6 (50 minutes / Lecture) | **4** | |
| Lecture | 5 of 6 | | **Slides 121 - 157** |
| Slides | 121 - 157 | | |
| Date | Thursday 26/09/2019 | | |

## Topics to Be Covered

❖ **2.11. Type Conversions and Rounding**
❖ **2.12. Case Study: Displaying the Current Time**
❖ **2.13. Software Development Process […]**
  • Requirement Specification & System Analysis
  • System Design & IPO
  • Implementation & Testing
  • Deployment & Maintenance

## Learning Objectives

| Learning Outcomes | Topics |
|---|---|
| − To perform numeric type conversion and rounding with the int and round functions. | 2.11. Type Conversions and Rounding |
| − To obtain the current system time by using time.time() | 2.12. Case Study: Displaying the Current Time |
| − To describe the software development process and apply it to develop a loan payment program. | 2.13. Software Development Process |

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# Exercises

## ❖ 2.11. Type Conversions and Rounding

1. What does a conversion from a float to an integer do with the fractional part of the float value? Does the int(value) function change the variable value?
2. Are the following statements correct? If so, show their printout.

```
1  value = 4.6
2  print(int(value))
3  print(round(value))
4  print(eval("4 * 5 + 2"))
5  print(int("04"))
6  print(int("4.5"))
7  print(eval("04"))
```

## ❖ 2.12. Case Study: Displaying the Current Time

1. What does time.time() return?
2. How do you obtain the seconds from the returned value for time.time()?

## ❖ 2.13. Software Development Process

1. In which process involves translating the system design into programs?
2. In which process seeks to identify the system input and output?
3. In which process ensures that the code meets the requirements specification and weeds out bugs?