FACULTY OF COMPUTING & INFORMATION TECHNOLOGY
KING ABDULAZIZ UNIVERSITY

كلية الحاسبات وتقنية المعلومات
جامعة الملك عبدالعزيز

CPIT 110

Instructor Manual

For 50 Minutes Lectures

Week 9

27/10/2019 – 31/10/2019

Chapter 4

Selections

Chapter 5

Loops

This Week Events	– Mid-Term Exam 1 - Part 2 (in Lab Time)
Next Week Events	– Lab #7 (Chapter 5 Part 1)

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Instructor Manual – Lecture #1 in Week 9

Chapter	4. Selections
Number of Lectures	3 (50 minutes / Lecture)
Lecture	6 of 6
Slides	139 - 156
Date	Sunday 27/10/2019

Week	Lecture
9	6 of 6
	Slides 139 - 165

Topics to Be Covered

- **4.14. Conditional Expressions**
- **4.15. Operator Precedence and Associativity**

Learning Objectives

Learning Outcomes	Topics
– To write expressions that use the conditional expressions.	4.14. Conditional Expressions
– To understand the rules governing operator precedence and associativity.	4.15. Operator Precedence and Associativity

Exercises

- **4.14. Conditional Expressions**
  1. Suppose that when you run the following program you enter the input 2, 3, 6 from the console. What is the output?

```
1  x, y, z = eval(input("Enter three numbers: "))
2  print("sorted" if x < y and y < z else "not sorted")
```

2. Rewrite the following if statements using a conditional expression:

```
if ages >= 16:
    ticketPrice = 20
else:
    ticketPrice = 10
```

```
if count % 10 == 0 :
    print(count)
else:
    print(count, end = " ")
```

3. Rewrite the following conditional expressions using if/else statements:
   - score = 3 * scale if x > 10 else 4 * scale
   - tax = income * 0.2 if income > 10000 else income * 0.17 + 1000
   - print(i if number % 3 == 0 else j)

❖ 4.15. Operator Precedence and Associativity

1. List the precedence order of the Boolean operators.
2. Evaluate the following expressions:
   - True or True and False
   - True and True or False
3. True or false? All the binary operators except = are left-associative.
4. Evaluate the following expressions:
   - 2 * 2 - 3 > 2 and 4 – 2 > 5
   - 2 * 2 - 3 > 2 or 4 – 2 > 5
5. Is (x > 0 and x < 10) the same as ((x > 0) and (x < 10))?
6. Is (x > 0 or x < 10) the same as ((x > 0) or (x < 10))?
7. Is (x > 0 or x < 10 and y < 0) the same as (x > 0 or (x < 10 and y < 0))?

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Instructor Manual – Lecture #2 in Week 9

Chapter	5. Loops
Number of Lectures	3 (50 minutes / Lecture)
Lecture	1 of 6
Slides	1 - 31
Date	Tuesday 29/10/2019

Week	Lecture
9	1 of 6
	Slides 1 - 31

Topics to Be Covered

- **5.1. Motivations**
- **5.2. The while Loop [...]**

Learning Objectives

Learning Outcomes	Topics
– To write programs for executing statements repeatedly by using a while loop.	5.2. The while Loop [...]

Exercises

❖ 5.2. The while Loop [...]

1. What is wrong if guess is initialized to 0 in line 8 in Listing 5.3?
2. How many times are the following loop bodies repeated? What is the printout of each loop?

```
i = 1
while i < 10:
    if i % 2 == 0:
        print(i)
```

```
i = 1
while i < 10:
    if i % 2 == 0:
        print(i)
        i += 1
```

```
i = 1
while i < 10:
    if i % 2 == 0:
        print(i)
    i += 1
```

3. Analyze the following code. Is count < 100 always True, always False, or sometimes True or sometimes False at Point A, Point B, and Point C.

```
1  count = 0
2  while count < 100:
3      # Point A
4      print("Programming is fun!")
5      count += 1
6      # Point B
7  # Point C
```

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Instructor Manual – Lecture #3 in Week 9

Chapter	5. Loops
Number of Lectures	3 (50 minutes / Lecture)
Lecture	2 of 6
Slides	32 - 66
Date	Thursday 31/10/2019

Week	Lecture
9	2 of 6
	Slides 32 - 66

Topics to Be Covered

- **5.2. The while Loop [...Continued]**

Learning Objectives

Learning Outcomes	Topics
– To develop loops following the loop design strategy. – To control a loop with the user's confirmation. – To control a loop with a sentinel value.	5.2. The while Loop [...Continued]

Exercises

❖ 5.2. The while Loop [...Continued]

1. Show the errors in the following code:

`count = 0`
`while count < 100:`
`  print(count)`
	`count = 0`
	`while count < 100:`
	`  print(count)`
	`  count -= 1`
		`count = 0`
		`while count < 100:`
		`count -= 1`

2. Suppose the input is 2 3 4 5 0 (one number per line). What is the output of the following code?

```
1  number = eval(input("Enter an integer: "))
2  max = number
3
4  while number != 0:
5      number = eval(input("Enter an integer: "))
6      if number > max:
7          max = number
8
9  print("max is", max)
10 print("number", number)
```