weekly-Exercise - 09

## ICS 365-51 Metropolitan State University/MN

## Week 11 Due 11:59pm, Sunday, Nov. 6th, 2022 Fall 2022

## Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_Pong Lee\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Score: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Please complete both Parts I and II and then upload the results to D2L under the dropbox for Weekly Exercise 09 before the deadline (total 20 points).

## Part I: Based on the discussion in this week's lecture, please either bold or highlight your answers below, only one answer per question. (1 point each, total 10 points)

1. According to Table 12.1, provided on page 518 of the textbook, which of the following statements is not true?

A) Method binding can be either dynamic or static in Java while all method bindings in Ruby are dynamic;

B) All data are objects in SMALLTALK;

C) Constructors can be implicitly called in all 5 programming languages discussed in Table 12.1;

D) C++ is the only language that supports both single and multiple inheritance.

2. Based on the discussion in Chapter 12, which of the following programming languages is a pure Object-Oriented-Programming language?

A) C++;

B) C#;

C) Java;

D) Ruby.

3. The behavior of an object in Java is defined by

A) a group of methods.

B) a set of properties.

C) a list of classes.

D) a collection of data types.

4. Based on the discussion in Chapter 12, which of the followings is not one of the three major language features in object-oriented programming?

A) Abstract Data Types;

B) Inheritance;

C) Polymorphism;

D) Functions.

5. A method that is associated with an individual object in Java is called \_\_\_\_\_\_\_\_\_\_.

A) a static method.

B) a class method.

C) an instance method.

D) a block method.

6. Based on the discussion in Chapter 13, which of the following statements is true regarding the evaluation of semaphores?

A) The program will deadlock if the wait of fullspots is left out;

B) The buffer will overflow if the release of access is left out;

C) The buffer will overflow if the wait of access is left out;

D) The program will deadlock if the release of access is left out.

7. Based on the discussion in Chapter 13, task communication can be provided by

A) message passing;

B) shared nonlocal variables;

C) parameters;

D) all of above.

8. Based on the discussion in Chapter 13, synchronization can be provided by all the methods below except \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

A) Message Passing.

B) Monitors.

C) Remote Procedure Call.

D) Semaphores.

9. Based on the discussion in Chapter 13, which of the followings is not one of the design issues for concurrency?

A) How and when tasks start and end execution;

B) How and when are tasks created;

C) How to define a variable;

D) Competition and cooperation synchronization.

10. Based on the discussion in Chapter 13, which of the following statements is not true?

A) Scheduler is a program that maps task execution onto available processors;

B) A task that is blocked by input/output can go back to the Running state directly;

C) Cooperation synchronization refers to the situation where task A must wait for task B to complete some specific activity before task A can continue its execution;

D) Lightweight tasks all run in the same address space.

**Part II: Please study the lecture slides and handout covered this week to complete the following tasks: (Total 10 points)**

Given a *C* program as shown below, please write similar programs in Java and Python on our Linux server, *sp-cfcsc01.metrostate.edu*. Please "*cat*" your programs before either compiling and executing or executing it with the case provided, and then include the corresponding screenshots below: (10 points)

A *C* program we discussed in Handout A is provided below:

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2.1) Please provide the screenshot of a similar program in **Java** with its execution on the testing case below (5 points):

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|  |

2.2) Please provide the screenshot of a similar program in **Python** with its execution on the testing case below (5 points):

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|  |

References:

"Python Programming" by Richard L. Halterman, 2019

https://cs.appstate.edu/~rmp/cs2435/pythonbook.pdf

"Python Tutorial" by Guido van Rossum, 2012

http://marvin.cs.uidaho.edu/Teaching/CS515/pythonTutorial.pdf