

## WEEKLY-EXERCISE - 05

ICS 365-51

Metropolitan State University, MN

Week 6

Due 11:59pm, Sunday, Oct. 2<sup>nd</sup>, 2022

Fall 2022

Name: \_\_\_\_\_ Pong Lee \_\_\_\_\_ Score: \_\_\_\_\_

**Please complete both Parts I and II and then upload the results to D2L under the dropdown for Weekly Exercise 05 before the deadline (total 20 points).**

Part I: Based on the discussion in Lecture 5, please either **bold** or **highlight** your answers below, only one answer per question. (1 point each, total 10 points)

1. Based on the discussion in Chapter 5, which of the following statements is not true?
  - A) In C# and Java, the length of a variable name is no limit and all characters in a variable name are significant;
  - B) All variable names must begin with dollar signs in PHP;
  - C) Variable names in the C-based languages are case sensitive;
  - D) In Ruby, variable names that begin with @ are class variables.**
2. Which of the following words is not one of Java reserved words?
  - A) final
  - B) new
  - C) total**
  - D) void
3. Based on the discussion in Chapter 5, which of the following statements is not true??
  - A) In a dynamic-scoped language, the referencing environment is the local variables plus all visible variables in all active subprograms;
  - B) The lifetime of a variable is the time during which it is bound to a particular memory cell;
  - C) A binding is an association between an entity and an attribute, such as between a variable and its type or value, or between an operation and a symbol;
  - D) The nonlocal variables of a program unit are not visible in the unit in general.**
4. By running the following javascript program, which is similar to the one discussed on page 212 of your textbook or lecture slide 37 of Chapter 5, which of the following statements is correct?

```
function big() {
  function sub1() {
    var y = x; }
  function sub2() {
    var x = 5;
    sub1(); }
  var x = 3;
  sub2(); }
```

- A) Based on the static scoping, the value of y is 5
- B) Based on the dynamic scoping, the value of y is 3
- C) Based on the static scoping, the value of y is 3
- D) Based on the dynamic scoping, the value of y is undefined**
- E) Your answer: \_\_\_\_\_

5. Based on the discussion in Chapter 5, variables can be characterized as all of the following attributes except

- A) Address;
- B) Length;**
- C) Scope;
- D) Value.

6. Which of the following issues is not one of array design issues discussed in Chapter 6?
- A) Are elliptical references allowed?
  - B) Are subscripting expressions in element references range checked?
  - C) Can array objects be initialized?
  - D) What is the maximum number of subscripts?
7. Based on the discussion in Chapter 6, which of the followings is not one of data types in integer in Java?
- A) byte
  - B) double
  - C) long
  - D) short
8. Based on the discussion in Chapter 6, which of the following statement-pairs is correct in Python?
- A) `myNum = [1, 2, 3, 4] ; myNum(2) = 9`
  - B) `myNum2 = (1, 2, 3, 4) ; myNum[2] = 9`
  - C) `myNum2 = (1, 2, 3, 4) ; myNum(2) = 9`
  - D) `myNum = [1, 2, 3, 4] ; myNum[2] = 9`
9. Based on the discussion on Chapter 6 or slide 50 of Chapter 6, which of the following values is returned by Lisp statement `"(car (cdr (car (cdr '((1 2) (3 4)))))?)"`
- A) (4)
  - B) 4
  - C) (3 4)
  - D) 3 4
  - E) Your answer: \_\_\_\_\_
10. Based on the discussion in Chapter 6, which of the following statements is not true?
- A) A data type defines a collection of data objects and a set of predefined operations on those objects;
  - B) An associative array is an unordered collection of data elements that are indexed by an equal number of values called keys;
  - C) A tuple is a data type that is similar to an array, except that the elements are not named;
  - D) An ordinal type is one in which the range of possible values can be easily associated with the set of positive integers.

**Part II: Please study the discussion in class as well as covered in Chapters 5 and 6 of the textbook to complete the following tasks: (Total 10 points)**

1). Given a *Perl* program below, please write similar programs in *Java* and *Python* on our Linux server, sp-cfsc01.metrostate.edu. Please "cat" your program before executing the testing cases and include the corresponding screenshots below: (5 points)

A *Perl* program with its execution on two testing cases:

```
ics365fa2235@sp-cfsics:~/wk06$
ics365fa2235@sp-cfsics:~/wk06$ cat mysum.pl
#!/usr/bin/perl -w
if ( $ARGV[1] eq "+" ) {
    $sum = $ARGV[0] + $ARGV[2];
    print "$ARGV[0] + $ARGV[2] = $sum \n";
} else {
    $sub = $ARGV[0] - $ARGV[2];
    print "$ARGV[0] - $ARGV[2] = $sub \n";
}
ics365fa2235@sp-cfsics:~/wk06$
ics365fa2235@sp-cfsics:~/wk06$ ./mysum.pl 321 + 654
321 + 654 = 975
ics365fa2235@sp-cfsics:~/wk06$
ics365fa2235@sp-cfsics:~/wk06$ ./mysum.pl 321 - 654
321 - 654 = -333
ics365fa2235@sp-cfsics:~/wk06$
```

Please provide the screenshot of a similar program in **Python** with its execution on the two testing cases:

```
ics365fa2215@sp-cfsics:~$ ./mysum.py
321
+
654
321 + 654 = 975
ics365fa2215@sp-cfsics:~$ ./mysum.py
321
-
654
321 - 654 = -333
ics365fa2215@sp-cfsics:~$
```

```
ics365fa2215@sp-cfsics:~$ cat > mysum.py
#!/usr/bin/python3
a,addOrSub,b = int(input()),input(),int(input())
if addOrSub == "+"
    print(f'{a} + {b} = {(a + b)}')
else:
    print(f'{a} - {b} = {(a - b)}')
```

\*Above is using cat but has an error

```

GNU nano 6.2
#!/usr/bin/python3
a,addOrSub,b = int(input()),input(),int(input())
if addOrSub == "+":
    print(f'{a} + {b} = {(a + b)}')
else:
    print(f'{a} - {b} = {(a - b)}')

```

\*fixed the issue using pico as I didn't want to rewrite whole code again using cat.

Please provide the screenshot of a similar program in **Java** with its execution on the two testing cases:

```

ics365fa2215@sp-cfsics:~$ pico mySum.java
ics365fa2215@sp-cfsics:~$ javac mySum.java
ics365fa2215@sp-cfsics:~$ java mySum
321
+
654
321+654=975
ics365fa2215@sp-cfsics:~$ java mySum
321
-
654
321-654=-333
ics365fa2215@sp-cfsics:~$
import java.util.Scanner;
public class mySum
{
    public static void main(String[] args)
    {
        Scanner myObj = new Scanner(System.in);
        int x = myObj.nextInt();
        String op = myObj.next();
        int y = myObj.nextInt();
        myObj.close();
        int z = 0;
        if (op.equals("+"))
        {
            z = x + y;
            System.out.println( x + "+" + y + "=" + z);
        }
        else
        {
            z = x - y;
            System.out.println( x + "-" + y + "=" + z);
        }
    }
}

```

2). Given a *Perl* program below, please write similar programs in *Java* and *Python* on our Linux server, sp-cfsc01.metrostate.edu. Please "cat" your program before executing the testing cases and include the corresponding screenshots below: (5 points)

A **Perl** program with its execution on two testing cases:

```
ics365fa2235@sp-cfsics:~/wk06$
ics365fa2235@sp-cfsics:~/wk06$ cat mysum2.pl
#!/usr/bin/perl -w
$sum = 0;
for ( $i = $ARGV[0]; $i <= $ARGV[1]; $i++ ) {
    $sum = $sum + $i;
}
print "\n$ARGV[0] + ... + $ARGV[1] = $sum \n\n"
ics365fa2235@sp-cfsics:~/wk06$
ics365fa2235@sp-cfsics:~/wk06$ ./mysum2.pl 1 10

1 + ... + 10 = 55

ics365fa2235@sp-cfsics:~/wk06$
ics365fa2235@sp-cfsics:~/wk06$ ./mysum2.pl 11 20

11 + ... + 20 = 155

ics365fa2235@sp-cfsics:~/wk06$
```

Please provide the screenshot of a similar program in **Python** with its execution on the two testing cases:

```
ics365fa2215@sp-cfsics:~$ cat > mysum2.py
#!/usr/bin/python3
a = int(input())
b = int(input())
total = 0
for x in range(a,b):
    total += x
print(f'{a} + ... + {b} = {total + (b)}')
ics365fa2215@sp-cfsics:~$ chmod +x mysum2.py
ics365fa2215@sp-cfsics:~$ ls
Documents  bin  loop2  my1  my2  mysum.py  mysum2.py  number4
ics365fa2215@sp-cfsics:~$ ./mysum2.py
1
10
1 + ... + 10 = 55
ics365fa2215@sp-cfsics:~$ ./mysum2.py
11
20
11 + ... + 20 = 155
ics365fa2215@sp-cfsics:~$
```

Please provide the screenshot of a similar program in **Java** with its execution on the two testing cases:

```
ics365fa2215@sp-cfsics:~$ cat > mysum2.java
import java.util.Scanner;
public class mySum {
    public static void main(String args[]) {
        Scanner myObj = new Scanner(System.in);
        int x = myObj.nextInt();
        int y = myObj.nextInt();
        myObj.close();
        int total = 0;
        for(int z =x; z<y; z++) {
            total += z;
        }
        System.out.println(x + " ... " + y + " = " + (total + y));
    }
}
ics365fa2215@sp-cfsics:~$ java mySum2
1
10
1 ... 10 = 55
ics365fa2215@sp-cfsics:~$ java mySum2
11
20
11 ... 20 = 155
ics365fa2215@sp-cfsics:~$
```