Unit 2 – ICD2O – App Lab, Variables & Networks

Sample Test: October 9, 2024

Name: Gorski

Total	%	Knowledge	Communication	Application	Thinking
(85)	(100)	(24)	(24)	(20)	(17)

Knowledge

1. Identify the piece of the AppLab interface used for each of the following: /5

(a)	Choosing the widget's colour on the screen.	Design Mode	Coding Editor	Run Mode
(b)	Moving the widget's position on the screen.	Design Mode	Coding Editor	Run Mode
(c)	Choosing the sound to put in the playSound block.	Design Mode	Coding Editor	Run Mode
(d)	Typing in an noun into a MadLibs prompt.	Design Mode	Coding Editor	Run Mode
(e)	Clicking on a button to see what it does.	Design Mode	Coding Editor	Run Mode

2. Which of the following are valid widget IDs? (put an ✓ if valid and an ✖ if incorrect). /4

house_keeping ✓	Back up X	var@ble X	printer4paper ✓

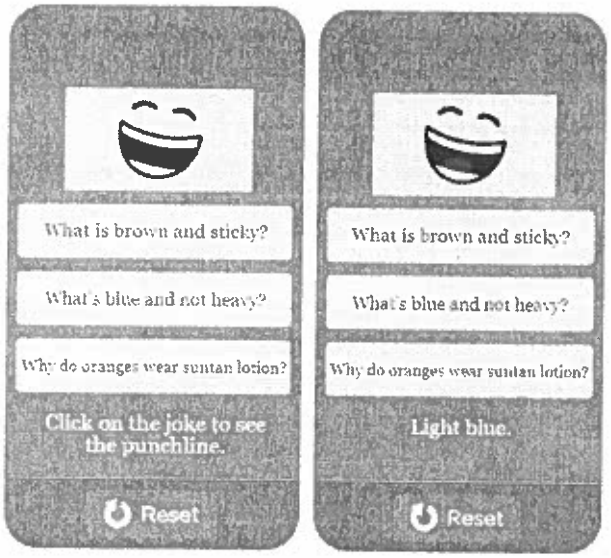
3. Classify each piece of input with the most appropriate type (text or number) /6

(a)	Alpha Go	text	(c)	OS	text	(e)	(905) 451-2860	text
(b)	1.1345	number	(d)	-8	number	(f)	L6Y 1Z4	text

4. Fill in the types: prompt or promptNum. /2

```
var year = promptNum ("What year is it? ");
var verb = prompt    ("Enter a verb: ");
```

5. Consider this user interface. /7



(a)	How many widgets are used?	5
(b)	What types of widgets appear?	Image..... Button..... Label.....
(c)	How many drop down menus?	0
(d)	How many onEvents would you need?	3
(e)	How many widgets would need a meaningful id?	4

Communication

6. Identify the term using the description. /12

Widget	(a)	A piece of a graphic user interface. e.g. Label, Button.
Variable	(b)	A named space in RAM that has a type.
Backup	(c)	Making a second copy of a file in another location.
Keyboard Shortcut	(d)	Pressing two keys on the keyboard to select an option quickly.
Housekeeping	(e)	Keeping your computer in good working order.
Router	(f)	Hardware that connects two computers and directs packets.
Server	(g)	A computer that provides webpages and videos over the internet.
ISP	(h)	Clients buy their internet connections from these companies.
ToR	(i)	The browser used on the dark web.
DNS	(j)	The online server that stores URL & IP address pairs.
RSA	(k)	One of the first forms of unbreakable encryption.
Destination IP address	(l)	One item in a packet header.

7. Fill in the blanks in the Mad Libs story after looking at the output below. /6

Prompts: (answers in italics)

Enter a noun: *peacock*	Enter an article of clothing: *shoe*
Enter another noun: *bathtubs*	Enter a food: *soy sauce*
Enter a liquid: *dishsoap*	Enter a body part: *arm*

Code:

```
onEvent("enter", "click", function(event) {
var noun = prompt ("Enter a noun : ");
var noun2 = prompt ("Enter another noun : ");
var liq = prompt ("Enter a liquid : ");
var cloth = prompt ("Enter an article of clothing : ");
var food = prompt ("Enter a food : ");
var body = prompt ("Enter a body part : ");

var words = "The Beach \n";
words = words + "When you go to the beach, bring a " + noun;
words = words + ", a thermos full of "+ liq +" and a couple ";
words = words + "of folding " + noun2 +"! You should also ";
words = words + "have a big "+ cloth +" to cover your "+body;
words = words + ". Also, bring "+ food +" for lunch.";
setText("answer", words);
});
```

8. Why is a depth-first search useful? Use specific details to support your answer. /6

Depth-first search (DFS) is useful because it explores deep regions of a graph. When solving a maze or a sudoku puzzle, programs create a graph of possible actions. Then, DFS finds the optimal path by searching the graph's branches, backtracking when needed to find unexplored paths. If an answer is found deep inside a tree-graph, the nature of the DFS algorithm will allow its quick location.

Application

9. What is outputted on the screen after each line of code runs? Put one character in each box. /6

```
var name = "Rae";
var age = 4;
var result = age*3;
```

`setText("id", "R="+result);`	R = 12
`setText("id", age + " years old");`	4 years old
`setText("id", age + "years old");`	4years old
`setText("id", name+age);`	Rae4
`setText("id", "name"+age);`	name4
`setText("id", name+"age");`	Raeage

10. Look at the following program: /6

```
onEvent("enter", "click", function(event) {

  var I = promptNum ("Enter the current: ");
  var R = promptNum ("Enter the resistance: ");

  var V = I * R;

  setText("answer", "The voltage is " + V);
});
```

a) If you entered 3 and 4, what would appear in the label 'answer'?
The voltage is 12

b) How many variables are in this program? 3

c) What are three variable names?
I, R, V

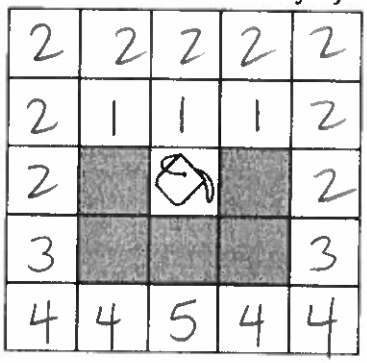
11. The relationship between power (P) and voltage (V) and resistance (R) is: $P = \frac{V^2}{R}$
Write code to find the power. /8

- Start the onEvent block
  `onEvent("enter", "click", function(event) {`
- Get input for the voltage (V) and resistance (R).
  `var V = promptNum("Enter the voltage: ");`
  `var R = promptNum("Enter the resistence: ");`
- Figure out the power. The formula is: $P = \frac{V^2}{R}$
  `var P = V*V/R;` or: `var P = V^2/R;`
- Print out the power in the label 'answer'.
  `setText("answer", "The power is " + P);`
- Close the onEvent Blocks
  `});`

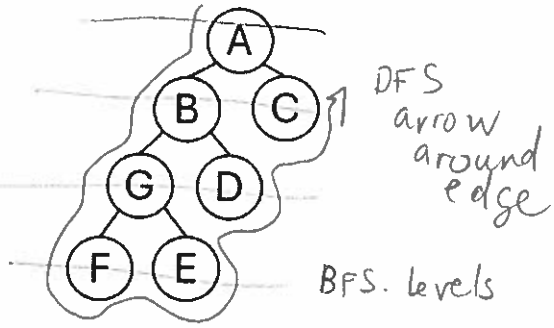
Thinking

12. Trace the following search techniques. /4

(a) Trace the flood fill with numbers.
(1 for first cell, 2 for second layer)



(b)



DFS: A B G F E D C

BFS: A B C G D F E

13. Circle **and correct** 5 errors in the following piece of code. /5

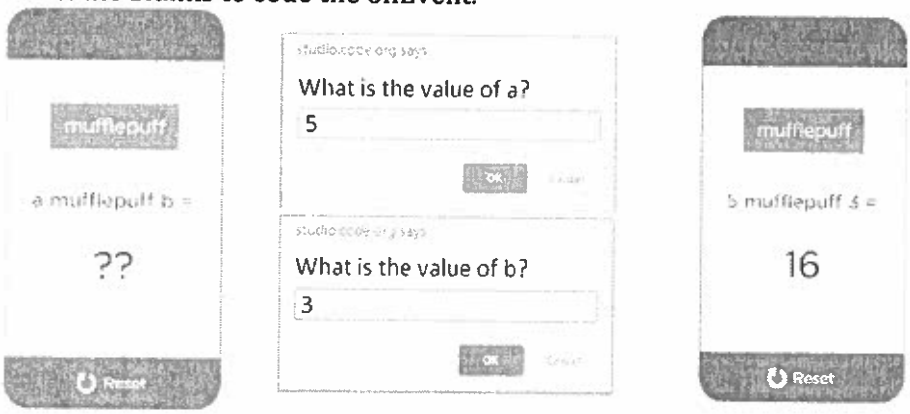
```
onEvent("enter", "click", function(event)
    var base = prompt("What is the side length? ")
    var sq = base * base;
    setText("LBLsquare", "Square Area: " + sq);
});
```

14. Decrypt the following message. (Hint: vgmcfrvgzz = basketball, Hint #2: All punctuation is at it appears) /2

rgcf g mfgr gke y'zz rfzz opt g rgzf gzz
take a seat and I'll tell you a tale all

gvptr vgzzfr, vgmcfrvgzz gke vgmfvgzz.
about ballet, basketball and baseball.

15. Fill in the blanks to code the onEvent.



More examples of the "mufflepuff" mathematical function follow:

- 2 mufflepuff 3 = -5
- 6 mufflepuff 4 = 20
- 1 mufflepuff 0 = 1
- 1 mufflepuff 1 = 0
- 23 mufflepuff 2 = 525
- 5 mufflepuff 2 = 21
- 3 mufflepuff 1 = 8

/6

```
onEvent("mufflepuff", "click", function(event) {
    var a = promptNum("What is the value of a?");
    var b = promptNum("What is the value of b?");
    setText("question", a + " mufflepuff " + b + " =");
    var ans = a^2 - b^2;
    setText("answer", ans);
});
```

(or) a*a - b*b