Midterm # 2

Started: Nov 1 at 5:09pm

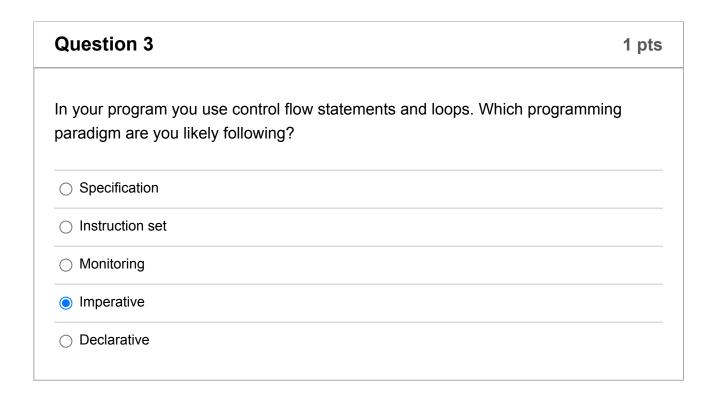
Quiz Instructions

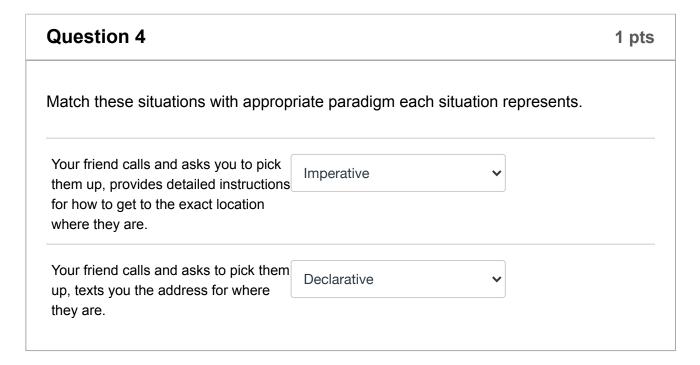
Welcome to CS152 section 5 midterm #2 for fall 2022 semester. The midterm is completely online to be taken any time during 11/1/22. Submit by the end of the day, 11:59pm California time. No late submissions will be accepted. There is a time limit of 120 minutes on this exam. You must finish and submit in 120 minutes, once started. Use any resources available to you (computer, lecture slides, lecture videos, quiz reviews, search engines). Good luck!

Question 1	1 pts
Your friend is throwing a dinner party and invited you. You are currently on a strict diet and your friend wants to accommodate you. You provide a detailed a specific dish you can eat for her to prepare. Which paradigm this type of strollows?	d recipe of
○ Declarative	
• Imperative	
O Pointer instruction set	
○ Microarchitecture	

Question 2	1 pts
Your friend is throwing a dinner party and invited you. Your friend asks you where you'd like to see at the party and you say "as long there are vegan options I was alright". Which paradigm this type of situation follows?	
○ Imperative	
○ Microarchitecture	
Declarative	

○ Instruction set





Question 5 1 pts

You ordered a new table and it was delivered. There are step by step instructions in the box for how to put the table together. Which paradigm this type of situation follows?	
○ Engineering	_
Imperative	_
○ Declarative	_
○ Toolset	_

Question 6	1 pts
You implement merge sort utilizing recursion. What type of problem solving appare you using?	oroach
Top-bottom approach	
○ Fixed solution approach	
○ Procedural	
○ Bottom-up approach	

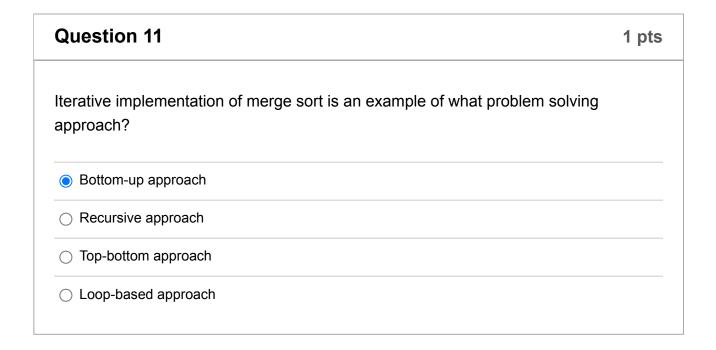
Question 7	1 pts
Object-oriented solutions tend to utilize which type of problem solving approach	h?
○ Bottom-up approach	
Top-bottom approach	
○ Functional approach	
○ Modules approach	

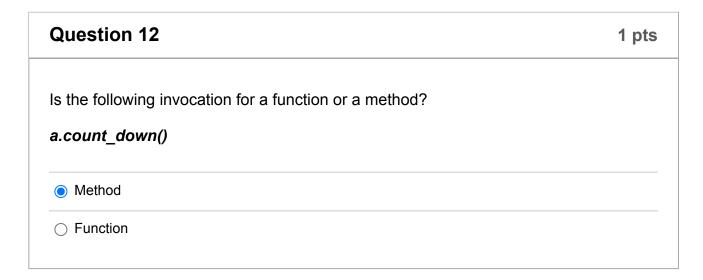
Question 8	1 pts
You are working on a program in which to arrive at a solution you are going to iteratively break a bigger problem into smaller problems, solve the sub-problem then integrate solutions of those sub-problems into a single comprehensive so Which problem solving approach are you utilizing?	•
○ Bottom-up approach	
○ Top-bottom approach	
Modular design approach	
Technical specification approach	

Question 9	1 pts
You are working on a program in which you are going to design representations objects used in your application, then you are going to implement interactions between these objects. Which problem solving approach are you utilizing?	s of the
Bottom-up approach	
○ Prototype approach	
○ Top-bottom approach	
○ Recursive approach	

Question 10	1 pts
Match these problem solving approaches.	







Question 13

1 pts

Is code reusability one of the advantages of using procedural programming?

○ No			
Yes			

Question 14	1 pts
What are the <u>core</u> principles of object oriented design?	
✓ Abstraction	
☐ Tight coupling	
✓ Encapsulation	
☐ Object design	
☐ Security	
☐ Class design	
✓ Polymorphism	
✓ Inheritance	

Question 15	1 pts
Is the following invocation for a function or a method? sum_of_elements()	
○ Method	
Function	

Question 16 1 pts

In your program you more likely to use?	u want to represent a particular person Sam Jones. Which are you
Class representing	g Sam Jones, then instantiate an object of that type
Object of type Per	rson carrying attributes of Sam Jones

Question 17	1 pts
Which do you aim to achieve in object oriented design?	
Loose coupling	
○ Tight coupling	
○ We do not design with coupling in mind	

Question 18	1 pts
In Java, method overloading is an example of what?	
○ Nested classes	
Static polymorphism	
○ Loose coupling	
Procedural programming	
O Dynamic polymorphism	

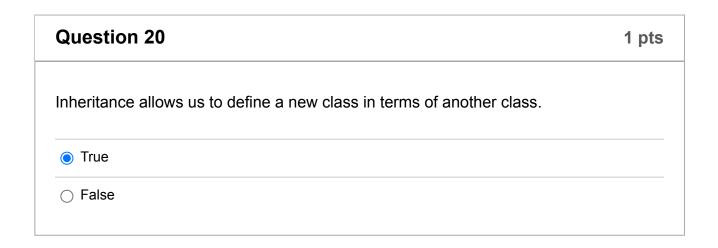
Question 19	pts
-------------	-----

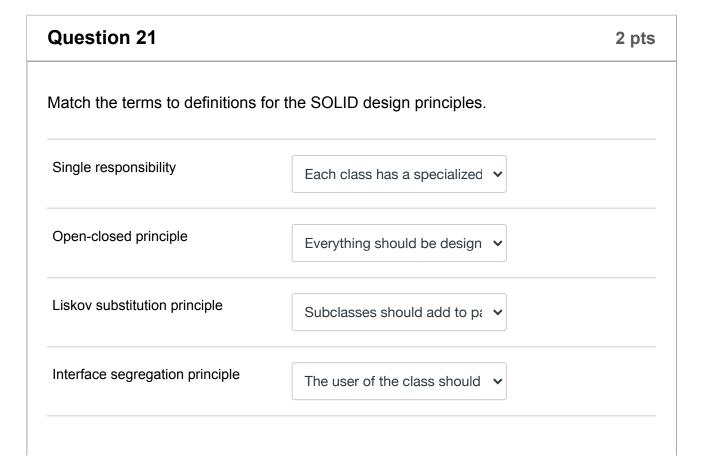
When a method is overridden by a child class, can the method have a different return type than the parent's method?

O Yes

O Children cannot override parent's methods in Java

No





Dependency inversion principle

Entities should depend on al 💌

Question 22	1 pts
In my program I am using an object from which other objects will inherit. W object oriented language am I utilizing?	hat type of
○ Object based	
Prototype based	
Modular based	
○ Class based	
Question 23	1 pts
A process is a part of a thread.	

Question 24	1 pts
Which one consumes less resources?	
○ Process	
Thread	

○ True

False

Question 25	1 pts
Which of these share the memory?	
Threads	
○ Processes	

Question 26	1 pts
Outputting the result of the computation to standard output stream is considered side effect in programming.	ed a
True	
○ False	

Question 27	1 pts
What is a pure function?	
A function with no input parameters	
A function with no return value	
A function with no side effects	
A function with no output to the user inside its body	

Question 28 1 pts

Your function be conside	on changed a value of a global variable inside its body. Can this function ered pure?
○ Yes	
No	

Question 29	1 pts
Programming side effects are always there due to a mistake by a programmer.	
○ True	
False	

Question 30	1 pts
In your program you are using facts, rules, and queries. What type of programmers language are you using?	ning
○ Parallel	
○ Database	
Logic	
○ Functional	
○ Procedural	

Question 31	1 pts
Question 31	1 p

Which constraint programming language did we talk about in class?

C
Prolog
Python
Scheme

Provide a line of code that creates a variable named *my_var* and assigns value "test" to it in Python.

my_var="test"

Is this code valid in Python?

alphabet_tuple = ('a', 'b', 'c', 'd', 'e')

alphabet_tuple[4] = 'f'

No

Yes

Question 34 1 pts

Select the Python mutable data types we discussed in class (select all).

Set
String
Numeric
List
Tuple
Dictionary

Question 35	1 pts
In your Dython gode you have the following list:	
In your Python code you have the following list:	
my_list = ["a", "b", "c", "d", "e", "f", "g", "h", "i"]	
Provide a line of code that provide you with the following elements:	
['c', 'd', 'e', 'f']	
my_list[2:6]	

In your Python code you have the following lines of code:

my_list = [1,2,3,4,5,6,7]

my_list.append(8)

my_list[1] = 9

my_list[4] = 10

```
my_list.insert(3, 11)
```

print(my_list)

What is the output of this code?

1,9,3,11,4,10,6,7,8

Question 37 1 pts

In your Python code you have the following lines of code:

```
my_data= (1, 3, "a", 10.3, [1, 2, 3, 4, ["a", "b", "c", "d"], 5, 6, 7, 8], 6, 1.5, "my string")
```

Provide a line of code that inserts value "e" into the most inner-list in the **2nd position**.

my_data[4][4].insert(1,"e")

Question 38 1 pts

In your Python code you have the following dictionary:

```
'my_key3': 66
}
}
```

Provide a line of code that accesses the "very important data" element in the most inner dictionary.

my_dict['d'][4]['my_key2'][3]

Question 39 1 pts

In your Python code you have the following dictionary:

Provide a line of code that updates the **6th** element in the list with **my_key1** in most inner dictionary to the new value **99**.

my_dict['d'][4]['my_key1'][5]=99

Question 40 1 pts

In your Python code you have the following variable:

my_string = "my important text goes here"

Provide a line of code that accesses the 7th character from the end of the string.

my_string[-7]

Question 41	1 pts
In this code valid in Dython?	
Is this code valid in Python?	
prefix = "year "	
year = 2020	
print(prefix + year)	
No	
○ Yes	

Question 42 2 pts

Define a function called *print_by_character()* in Python, which accepts a string input parameter and, inside the function body, iterates over characters in that string and outputs/prints each letter on a new line by itself. This function does not return a value.

def print_by_character(input_string:str):
 for c in input_string:

print(c)

print(c)

print(c)

print(c)

print(c)

Question 43 2 pts

Define a function called **sum_elements()** in Python, which accepts the following input parameters:

- · a list of values
- a number indicating the starting position
- a number indicating the end position

In the body of the function implement code that will return a slice starting at the specified position and end at the specified position. Make sure to account for when the specified end position is greater than the size of the list.

```
from typing import List

def sum_elements(values:List[int], start:int, end:int):
    if end >= len(values):
        print("End Position is out of Bound!")
        return []
    return values[start: end+1]
```

p





(i) 29 words </> // !!





Question 44 2 pts

Define a function *called add_element()* in Python, which will accept a dictionary and add new element to that dictionary. This function accepts the following input parameters:

- a dictionary
- a value corresponding to the new key (can be any data type)
- a value corresponding to the new value (can be any data type)

In the body of the function implement code that will take the passed in dictionary, add a new element specified by the other two input parameters, and return a dictionary with the new element added to it.

def add_element(dictionary, key, value): dictionary[key] = value return dictionary

p





11 words | </> / ::





Question 45 3 pts

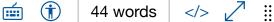
Define a function called operate on set() in Python, which will accept two sets and an operation (as a string) to perform on these two sets, and will return a set result of the operation. This function will accept the following input parameters:

- set #1
- set #2
- string value indicating the operation to perform on the sets (e.g. valid values can be "intersection", "union", "difference", "symdifference")

Inside the body of this function you will implement the logic that checks the value of the operation and, based on that value, compute the appropriate operation on the two sets. The result of this operation is returned from the function.

```
def operate on set(set1: Set, set2: Set, operation:str):
  if operation == "intersection":
    return set1.intersection(set2)
  if operation == "union":
    return set1.union(set2)
  if operation == "difference":
    return set1.difference(set2)
  if operation == "symdifference":
    return set1.symmetric_difference(set2)
  print("Invalid Operation!")
  return None
```









Question 46 4 pts

In Python, define a class called **Person**. Each person has the following instance attributes:

- name
- age

Each person also has the following class level attribute:

• species

The class **Person** should have the following functionality:

- constructor that initializes all the instance attributes
- · getters for all the instance level attributes
- setters for all the instance level attributes

Define a class called **Artist**, which inherits from class **Person**. Each artist should have the following instance level attribute:

· specialty

The class Artist should have the following functionality:

- constructor that initializes all the instance level attributes
- getter for its instance level attribute
- setter for its instance level attribute

Add code that instantiates an instance of Artist with the following information: Sam Smith, 29, sculpture.

Print out information about this artist (formatting is up to you).

Change the name of this artist to Samuel Smith.

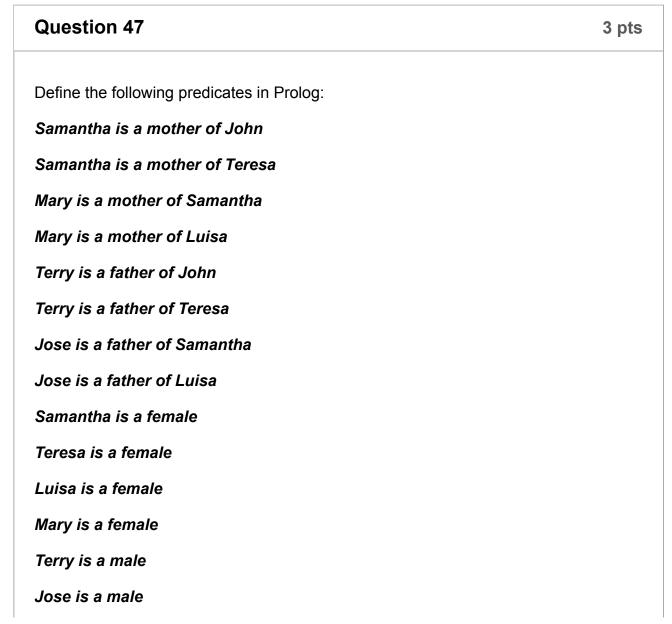
Print out information about this artist again (formatting is up to you).

def set_specialty(self, new_specialty):

```
def __str__(self):
    return "{} is the name. {} is the age. {} is the specialty".format(self.name, self.age, self.specialty)

sam_smith = Artist("Sam Smith", 29, "sculpture")
    print(sam_smith)

sam_smith.set_name("Samuel Smith")
    print(sam_smith)
```



John is a male

In your program, create a **rule** that defines an **aunt**. This rule can be based on other rules you create or you can write it as a single rule. At the end write a **query** that asks for all the aunts of **Teresa**.

```
Edit View Insert Format Tools Table

12pt \( \times \) Paragraph \( \times \) B \( I \) \( \times \) \( \time
```

Question 48

2 pts

Define the following predicates in Prolog:

Martha likes pasta

Martha likes hiking

Martha likes drawing

Mike likes pasta

Mike likes running Mike likes drawing pasta is food hiking is activity drawing is activity running is activity Create a rule that will produce all the things both Mike and Martha like to do (activities only). Edit View Insert Format Tools Table p

Quiz saved at 5:52pm

Submit Quiz