Assignment Report for Assignment 05

Course and Section	CSC215.28
Assignment Name	Assignment 06
Due Date and Time	11-17-2024 @ 11:55 PM
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PART A

Question Description and Analysis:

This part of the assignment asks me to analyze some lines from package 17. It is focused on superclasses and subclasses.

Answer:

1. These lines of code work because the code first instantiates an object of the Singer class. After the object has been instantiated, the user is now allowed to use the methods inside of the Singer class. If the user of this code tries to call the methods without instantiating the object, it will throw out an error.
2. Lines #86 to #89 do not work because we are instantiating an object with the wrong type. For example, we see that we are using the Person constructor to instantiate an object of the Singer class. Each of these different classes have their own constructors that you should call to instantiate an object. This is because these classes may have their own logic that does things differently when you instantiate a class.

3. getName and sayHello() work because these are methods that were inherited from the Person super class.
4. Calling methods getSong() and sayHelloSinger() are not found on the singer object because the type of the object is Person and not Singer. This means that the singer object does not have any of the inherited methods from Singer. It only has the methods from Person, which is the superclass. That is why the getName() and sayHelloPerson() methods work, but getSong() and sayHelloSinger() don't.

PART B

Question Description and Analysis:

This part of the assignment checks my knowledge on downcasting and upcasting and Java.

Answer:

1. These lines of code work because studentSub is an instance of the Student class. It has the methods of the Student class (sayHelloStuednt()), but also the inherited methods from the Person class (sayHelloPerson()). studentSuper is an instance of the Person class, so it has access to the sayHelloPerson() method.
2. Even though studentSuper was able to call sayHelloPerson() in line #112, line #113 on the other hand, does not work. This is because the sayHelloStudent method does not exist in the Person class. Originally, when we created studentSuper, we assigned it to studentSub which was a Student class. However, we casted the studentSub object and

converted it from the Student class to Person class. Because of this, we lost access to the inherited method sayHelloStudent().

3. This code does not work because the code attempts to cast an object that was originally a superclass (Person) into a subclass (Student). This does not work because the object was originally instantiated using a Person constructor. However, when we convert it into a subclass, you'll find that some data members exist in the subclass that the superclass doesn't have. Not only that, even inherited methods may have a different overridden logic that is different from the superclass.
4. This code works because studentSub is instantiated from a Student class. studentSuper holds a reference to the same object, studentSub, but was casted into a Person. Since a Person is a superclass of Student, it lost some features since the inherited methods weren't there anymore. However, we casted studentSuper back into a Student, giving back those inherited methods and data members. This works because the object was originally instantiated as a Student and not a Person.

PART C

Question Description and Analysis:

This part of the assignment checks my knowledge on equals and compareTo Methods

Answer:

1. These lines of code work because you can directly compare objects using the equality operator ==. The code says that s1 and s2 are different because each is assigned to a newly instantiated Student object using 'new Student()'.

Screenshots of Outputs and Explanation:

These screenshots show what I accomplished…

PART #

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This part of the assignment asks that…

Answer:

This is my answer…

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