ReadME for running the Swift Code. - OOAD Graduate Presentation

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Topic: Objective C vs Swift

Note: This ReadME is for running the Swift code

Description:

In this code, several object-oriented properties are dealt with. To name a few:

- Classes
- Objects
- Properties
- Methods
- Inheritance
- Polymorphism
- Method Overloading
- Method Overriding
- Usage of Access Specifiers
- Abstract classes
- Concrete classes
- Aggregation

First off, we have created root or base classes such as House ,Equipment, Electricity and Build. Next there are derived classes such as Brick and Tools which derive from Equipment. For Tools, there are three derived classes namely: Painting Tool, Chainsaw and Driller . We have showcased several properties and responsibilities of objects using swift.

We have created the class House that takes in a set of materials and the collect() function in the House class separates the materials with a white space. The Equipment class takes in the type of equipment and has three different functions namely select(), use() and construct(). Used Inheritance to showcase derived classes and used the keyword Super to inherit the initialization function of the base class. Functions such as select() and use() are overridden in all of the tools' classes. Method Overloading is showcased specifically in the Brick Class where

the Brick can be made with/without Clay and the “hasClay” and “UsingClay” parameters are used to decide how to build the house. Created created several instances/objects to exhibit the above-mentioned properties using print statements. Next, we created an abstract base class called Tools that inherits from the Equipment class. Following this we created separate concrete classes such as Painting Tool, ChainSaw, Driller than can override methods in Tools class such as select() and use(). Utilized access specifiers such as Private in the Electricity class. We tried to implement aggregation by saying that the chainsaw and the driller use electricity thus generating a *HAS A* relationship. Finally we implemented Polymorphism by calling the construct operation on each equipment - brick, painting tool, chainsaw and driller.

comments are provided everywhere to provide better insights

How to Run:

Require XCode IDE which is a part of macOS. This code uses XCode 4.
The file is saved as GraduatePresentationProgram.playground. A swift playground is an interactive dynamic code platform available in XCode.

1) First open GraduatePresentationProgram.playground in XCode
2) To Run , click on - Editor -> Run Playground

Output of our code:

```
**********OOAD graduate presentation Demo using Swift - A simple program to demonstrate object principles **********

 In this code, several object oriented properties are dealt with. First off, we have created root/ base classes such as House / Equipment, Electricity and Build. Next there are derived classes such as Brick, Tools. For Tools,  there are three derived  classes namely: Painting Tool, ChainSaw and Driller . We have showcased several properties and responsibilities of objects using swift.


 First off we have created classes with attributes and methods in them. Used Inheritance to showcase derived classes and used the keyword Super to inherit the initialization function of the base class. Overriden the functions select() and use() in several areas, Overloading the select() function where the Brick can be made with/without Clay. created several instances/ objects to exhibit the above mentioned properties using print statements. Next we created an abstract base class called Tools that inherits from Equipment class. Following this we created separate concrete classes such as Painting Tool, ChainSaw, Driller than can override methods in Tools class. Utilized access specifiers such as Private in several spaces. We tried to implement aggregation by saying that the chainsaw and the driller uses electricity thus  generating a  *HAS A* relationship. Finally we implemented Polymorphism by calling the construct operation on each equipment - brick,painting tool, chainsaw and driller.

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 output below

Correct equipment selection for  brand type X.
Build House with  Mud Rock Concrete and  with Clayed Bricks.
select Roller brush based on size and area to paint
Paint the house with  Mud Rock Concrete.
select Earthwise chainsaw brand
Use Mud Rock Concrete  and chainSaw at voltage 100.
select RBS driller brand
Use Mud Rock Concrete  and driller at voltage 100.
```