Group 19

Project 3 Design Patterns

25 October 2021

Design Patterns

For project 3, our team incorporated various creational, structural and behavioral design patterns. The creational pattern that fits within the context of our project is the factory method. This design pattern provides an interface for creating objects in a superclass and allows subclasses to alter the type of objects that will be created. We applied this pattern by pulling user data from the UI in the form of transactions, and then using that data to provide the user with useful budgeting information. Moreover, our program takes these transaction objects and creates a pie chart based on which category the transaction falls under. This is the exact process that the design pattern, factory method, describes.

The structural pattern we used throughout our project is analogous to a composite structure. We apply this structure when we unpack all the user information stored in a transaction object. Specifically, the transaction object can be decomposed into date, sign(+/-), item, price and category. With this data we can provide the user with specifications about expenses per category through a pie chart. As well as providing the user with a view of their progress toward their budgeting goals.

The behavioral pattern that we used to present the user with budgeting information is the iterator. We applied the iterator when scanning the transaction array list for similar categories. Then, an iterator adds the price of each item in a category to get a total sum per category. The iterator design pattern was applied to our project three to group user information.