Project Group 43

NextBox Team

Anirudh Tiwari
Daniel Milroy
Sneha Parmar
Saurabh Sood

Design Patterns

1.) **Proxy design pattern**

We used the Proxy design pattern in connecting to a database. We implemented DAO (Data Access Objects) for each scenario where we needed to connect to the database.

Eg: For logging in, we have a class called LoginDAOImpl, which contains a method called checkLogin, and connects to the database, and returns a User object, which matches the given username and password. This method is called in the UserAccountsController.

Relevant classes (for the Login use case):
- LoginDAO - an interface containing checkLogin
- LoginDAOImpl - a proxy class that implements the LoginDAO interface

2.) **Singleton Design Pattern**

We are planning to use the Singleton design pattern for implementing the Clipboard. At any instance, for a particular user, there be a single instance of the Clipboard, and it will contain an instance of File, which represents the copied/cut file.

Relevant classes:
- Clipboard

3.) **AbstractFactory pattern**

We are planning to use the AbstractFactory pattern to create users, and admins. Based on the parameter we pass to the pattern, either an AdminUser or a normal User object will be returned.

Relevant classes:
- AbstractUserFactory

Other Refactoring

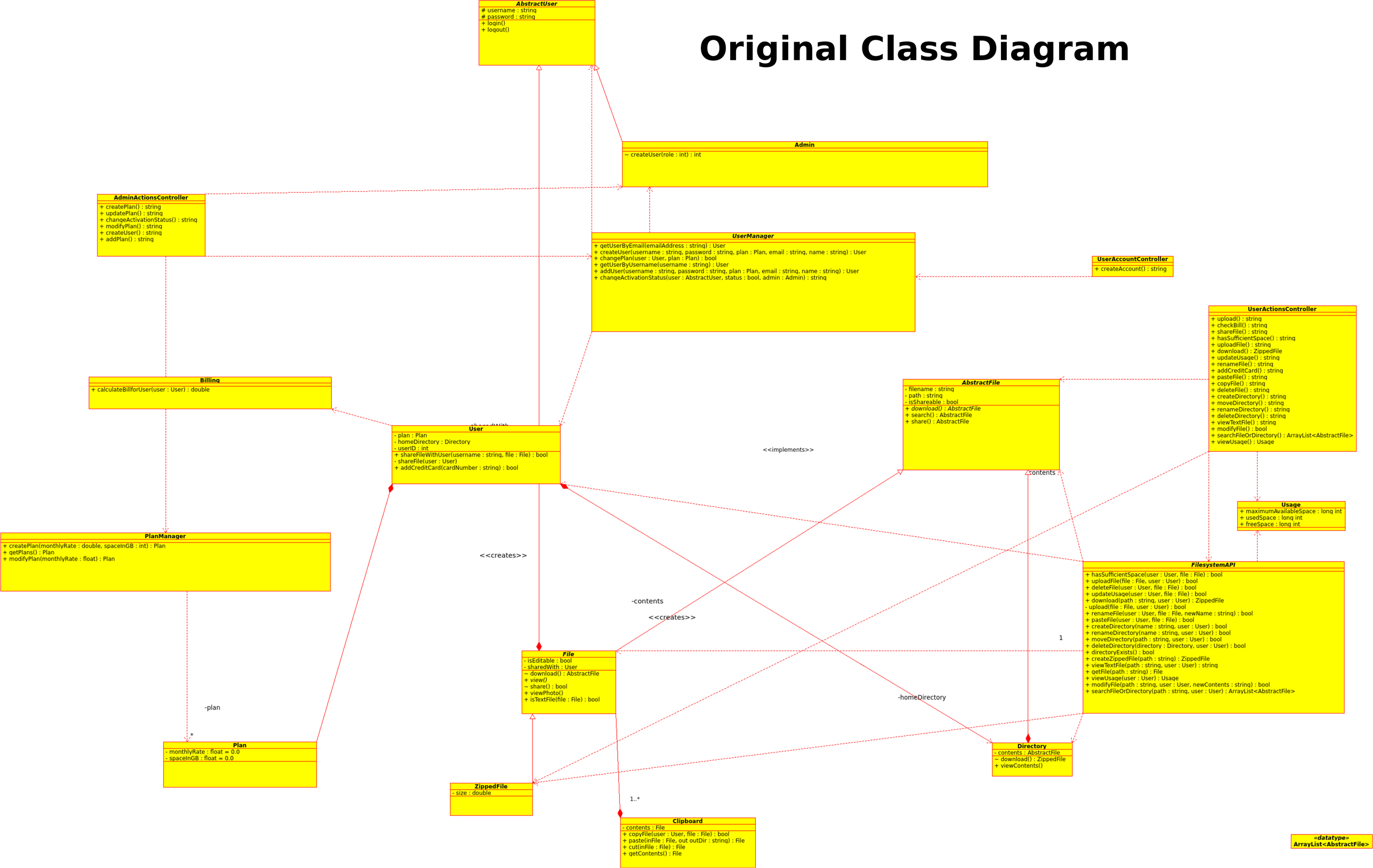
1.) **AbstractFile to Filepath**

We renamed AbstractFile to Filepath and added methods to create and operate on java.io.file.Path and java.io.File objects. Filepath wraps java.io.file.Path and java.io.file.Paths together, permitting straightforward application of getPath and appending a string to a Path. Furthermore, we can query object type by wrapping java.io.File.isDirectory() and java.io.File.isFile(). This allows easy permission modification for file and directory sharing via java.io.File.setReadable(), java.io.File.setWriteable(), and java.io.File.setExecutable().

Class Diagrams

Our original and updated class diagrams are added to this document as the penultimate and last pages, respectively.

Original Class Diagram



Updated Diagram