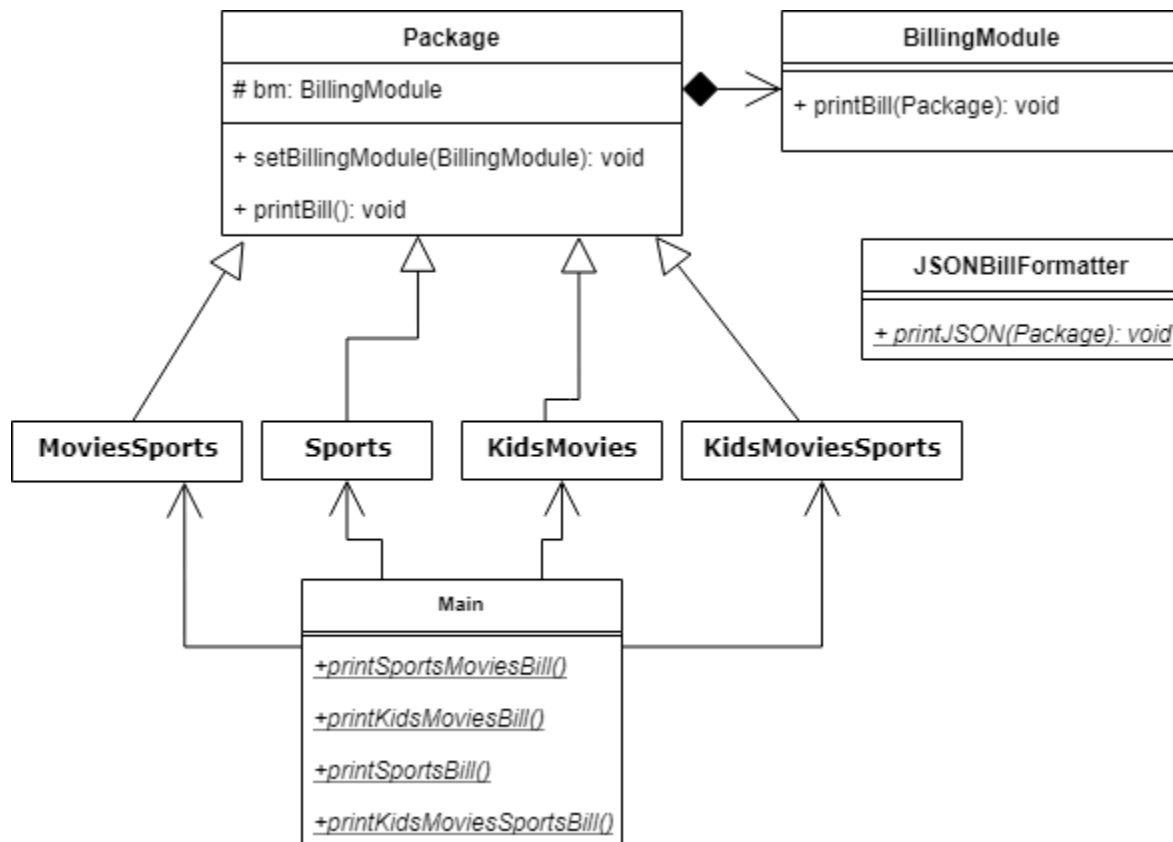


## Question 4

A cable service provider has an application that manages channel bundles and pricing. The class diagram below outlines the functionality for representing bundles and calculating their cost.



The Main class calls the Package subclasses to print the bill. The Package subclasses store an instance of the BillingModule and use this instance to print the bill of a Package. JSONBillFormatter must be integrated with the system so the bills are printed as JSON in addition to its default format.

- Identify 2 problems with the current design citing any solid violations.
- Propose a design pattern to address your issues and include the JSONBillFormatter **WITHOUT** changing any code in Package and BillingModule.
- Provide a redesigned UML Diagram of the system including your proposed design patterns.
- Using the link provided refactor the codebase to implement your redesign.

CodeBase: <https://replit.com/@Snickdx/DP-Exercise-4>