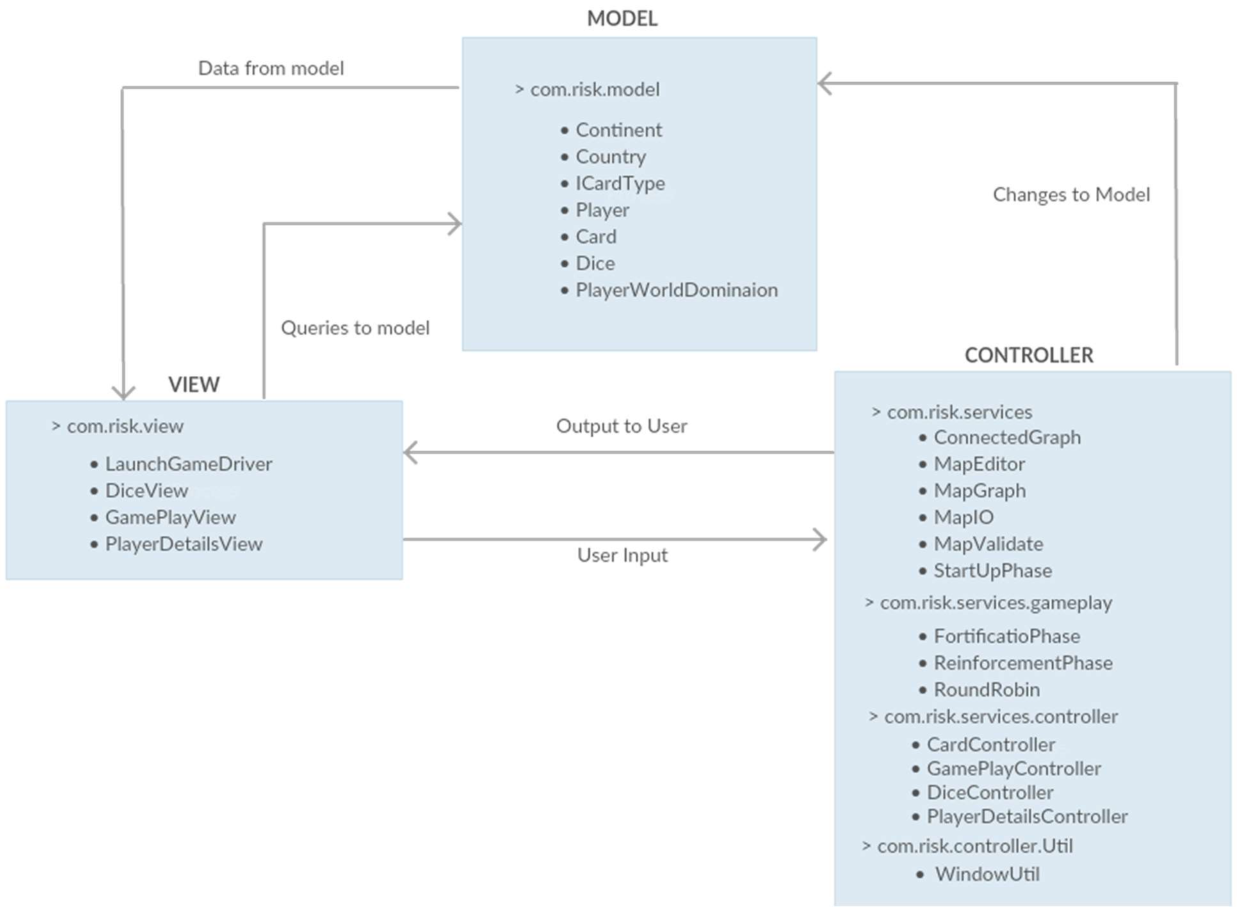
Architectural Design: Our RISK game is designed based on Model View Controller (M.V.C) architecture. We have divided and distributes our modules in the parts **MODEL, VIEW and SERVICES**. Below is the block diagram of our implementation of MVC architecture.



Modules in Model:

We have 4 models described below:

1. Player: Player class is used to model the actual players of the game. We have implemented reinforcement, fortification and attack phase here.
2. Country: Country class model's country, where each player owns few countries in the beginning and their aim is to get ownership of all the countries.
3. Continent: Continent class models Continent, which can be taken as a superset of countries, where each country belongs to one and only one continent.
4. ICardType(Interface): It is used to model cards which are allocated after the attack phase if any player is eligible for the card.
5. Card: Card class is used to model cards, which are assigned to players after they win a country
6. Dice: Class to model dice objects for the attack phase.

Modules in Services:

Our services folder is the controller of our application. It further has a folder for representing the gameplay phases of reinforcement and fortification along with a class to provide player chances in a round robin fashion.

- MapEditor: This class provides functionality to edit or create a map from scratch.
- MapGraph: MapGraph creates a graph (connected) from map data and provides methods to modify the graph.
- ConnectedGraph: Checks whether a graph is connected or not.
- MapIO: This class reads the data from a **.map** file and provides it to MapEditor's object. It also gets data from MapEditor's object and writes it to an empty **.map** file.
- MapValidate: It is responsible for verifying the correctness of a map which is tobe loaded for game play.
- StartUpPhase: It takes data from MapIO, and initializes data for Players, countries and armies. Here countries are randomly assigned to each player.
- Gameplay: It has the following classes.
    - ReinforcementPhase: It has methods to get the number of armies calculated for are assignment to each player.
    - FortificationPhase: It provides method to pass the armies form one country to another.
    - RoundRobin: It provides functionality for round robin traversal among the players.
- Controller: It has controllers for controlling the models.
    - CardController: It governs the card view. It loads the card for the game play
    - DiceController: It governs the attack view. It manipulates the attack view and updates the dice objects according to the attack phase.
    - GamePlayController: It governs the game play.
    - PlayerDetailsController: It takes the number of players and, player names
- Util: Util package is used to provide general helper functions of the game, which are called at many places.
    - WindowUtil: It has various helper functions related for handling JavaFX features.

Modules in View:

1. LaunchGameDriver: Provides an interface for the user to interact with the game. It launches the main window of the game to load or create the map file.
2. DiceView: This view provides a display window for the attack phase. Player interacts with this window during the attack phase.
3. GamePlayView: It is used to initialize the game play screen
4. PlayerDetailsWindow: View for the player selection. It provides options to select number of players and their names.