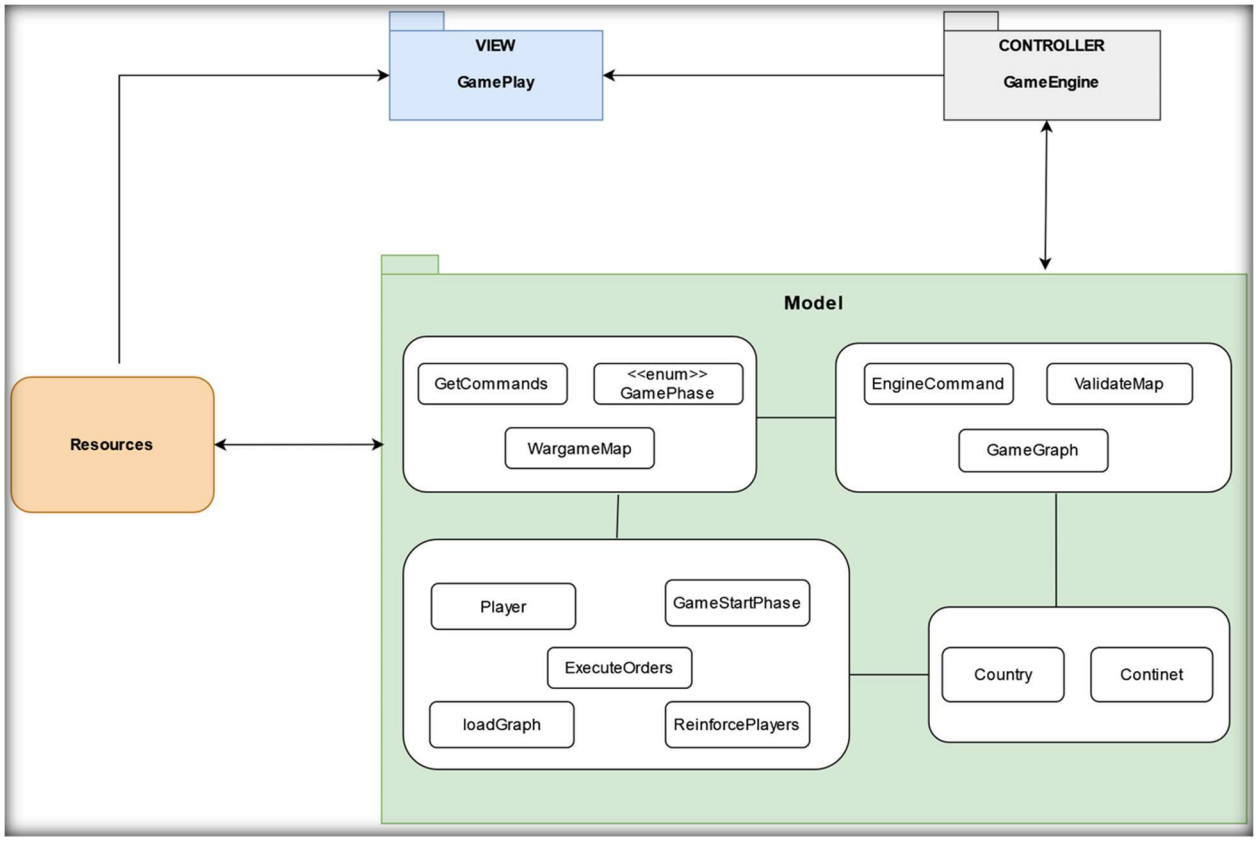
ARCHITECTURE – BUILD 1



The UML diagram above is the architecture diagram of the wargame command line project created for Build 1. In this build we followed simple MVC architecture to complete the build requirements. Given below is the description of the above diagram

RESOURCES – resources folder contains all the saved map files in the domination map format and extension .map

GamePhase – It is an enum that enables phase wise execution of the game and consists of 7 phases: BEGINGAME, EDITMAP, STARTPLAY, ISSUEORDER, EXECUTEORDER, TAKETURN & ENDGAME

FLOW of the Game phases

BEGINGAME Phase: The game starts at this phase when GamePlay.java is executed. Valid commands during this phase include “editmap” or “loadmap” or “stopgame” and the game continues to receive further commands from the user. GamePlay.java calls GameEngine.java that acts as controller and contains methods to control actions to be taken based on the commands issued by the player

***editmap**: This command allows the opening of existing map files or creation of a map from scratch if the specified file does not exist.

EngineCommand.java is called by GameEngine.java since it has implementation of all the commands related to Editmap phase.

EDITMAP Phase: After the "editmap" command, the game transitions to the EDITMAP phase where users can view, add, or remove nodes using the following commands:

- **editcontinent** *–add continentName continentvalue/ –remove continentName*
- **editcountry** *–add countryName continentName / –remove countryName*
- **editneighbor** *–add countryName neighborcountryName / -remove countryNameneighborcountryName*
- **showmap**

After all modifications, the user needs to either save or load the edited map using the following commands:

- savemap filename
- loadmap filename
- validatemap

The "loadmap" command changes the game phase to STARTPLAY.

*loadmap: This command also executes the EngineCommand.java file, where the loadmap() function is called to load a map that is validated beforehand for gameplay, and the game further transitions to the STARTUP Phase.

*validatemap: Validatemap is implemented in GameGraph.java and it ensures that the map is a connected graph.

STARTPLAY Phase: During this phase, players are added or removed based on user commands, and countries are allocated to every player. The following commands are implemented in this phase:

- gameplayer –add playername -remove playername
- assigncountries

AssignEachPlayerReinforcements: After all players are added and countries are assigned to them, AssignEachPlayerReinforcements is called for each player in the driver program. Armies are calculated based on the number of countries owned by each player and assigned accordingly with a minimum of 3 armies. The round-robin fashion of turns starts for each player to issue orders and deploy army units on owned countries.

ISSUEORDER Phase: During this phase, each player has a chance to give orders to the game. The phase collects orders from each player, only accepting valid orders, and reduces corresponding army units once an order is collected. Players can issue orders until the total armies owned by all players are at least 1, or else the game proceeds to the next EXECUTE_ORDERS Phase as there will be no player left to provide any orders.

TAKETURN Phase: This phase implements the round-robin fashion for all players to issue orders one at a time. After each issue order phase for a player, TAKETURN is called to provide a turn to the next player.

EXECUTEORDER Phase: Once all orders are collected, the Execution Phase begins, collecting the first order from each player sequentially and executing that order in a round-robin fashion.

ENDGAME Phase: This phase is called when player issues *stopgame* command, this is to quit from the game whenever player wants to stop the game.