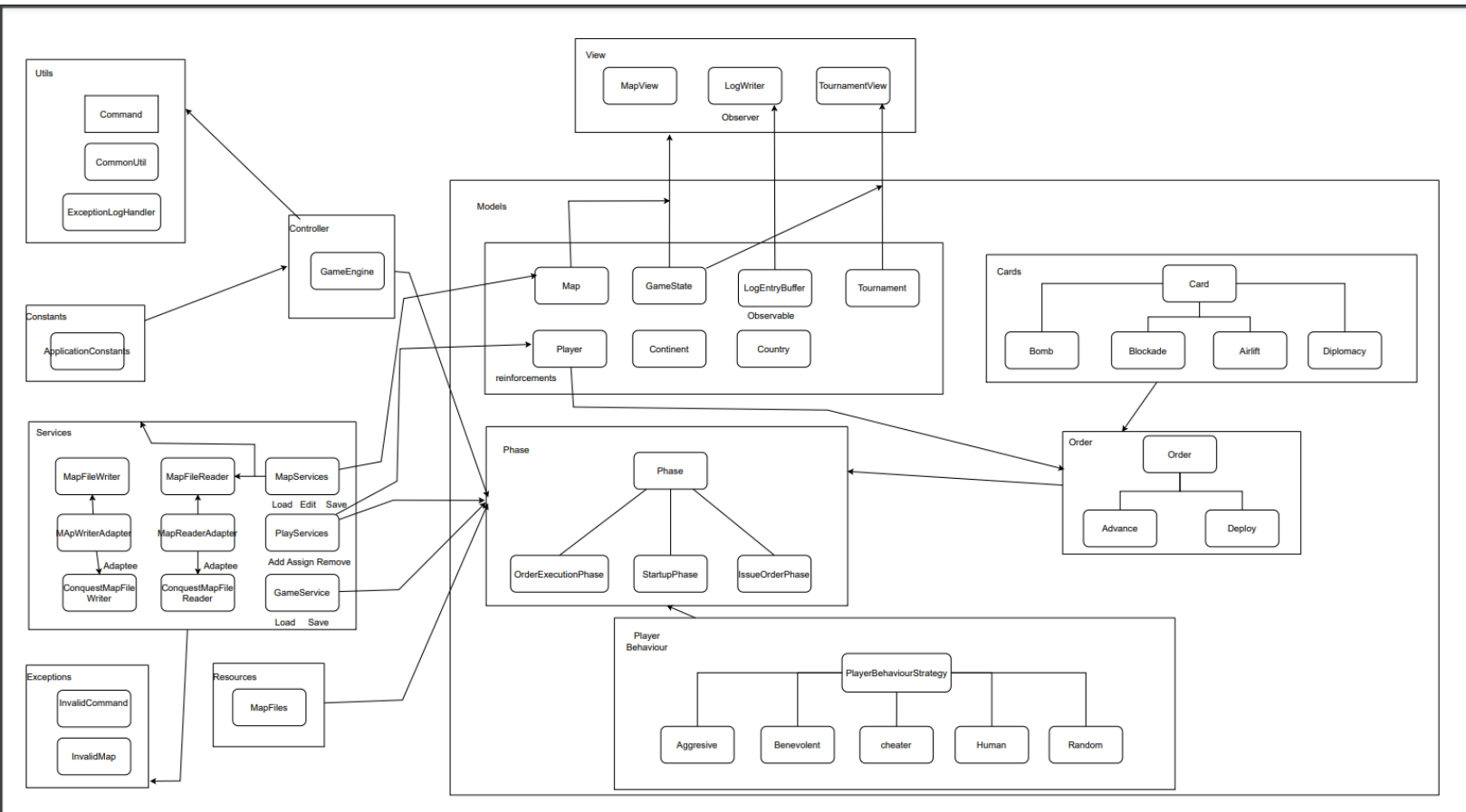# Group U5: Architecture Diagram
COURSE: SOEN 6441
BUILD #3

A. Models

- Player:Manages continents, countries, orders, and armies for each player.
- Order:Handles order actions, source and destination countries, and the number of armies to move.
- GameState:Manages Player and Order objects, maintaining a list of pending orders.
- Map:Manages Country and Continent objects, validates map connectivity, and ensures the integrity of countries and continents.
- Continent:Manages continents, including the bonus value for each. It links with Country objects to map countries within the continent.
- Country:Manages countries, their armies, and adjacent countries.
- LogEntryBuffer:Implements the Observer Pattern to record logs for various game stages.
- Tournament:Handles tournament gameplay with different player strategies.

- Phase:Implements the State Pattern with sub-classes for IssueOrder, Startup, and OrderExecution phases.
- Card:Manages various card types (Bomb, Blockade, Airlift, Diplomacy) with specific game effects.
- Order (Command Pattern):Defines commands like Advance and Deploy to be executed during gameplay.
- PlayerBehaviorStrategy (Strategy Pattern):Implements various player strategies (Aggressive, Benevolent, Cheater, Human, Random).
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B. View
- MapView:Displays the current state of the map during gameplay and the overall map during map editing.
- LogWriter:Writes logs to a file, derived from LogEntryBuffer.
- TournamentView:Displays the entire tournament gameplay.

C. Controller
- GameEngineController:Manages the main command-handling logic.

D. Services
- MapServices:Handles map state, including load, edit, and save functionalities.
- PlayerServices:Manages player-related services like adding, removing, assigning continents, countries, and armies.
- GameServices:Manages game-related services such as saving and loading.
- MapWriterAdapter (Adapter Pattern):Converts and writes map files using MapFileWriter and ConquestMapFileWriter.
- MapReaderAdapter (Adapter Pattern):Reads and parses map files using MapFileReader and ConquestMapFileReader.

E. Utils
- Command:Takes and formats player commands.
- CommonUtil:Handles input files.
- ExceptionLogHandler:Manages exceptions related to logs not caught by try/catch blocks.

F. Constants
- ApplicationConstants:Defines static members for application-wide use.

G. Exceptions
- InvalidCommand:Displays meaningful messages for invalid commands.
- InvalidMap:Displays meaningful messages for invalid maps.

H. Resources
- Map Files:Stores and manages all .map files, both existing and newly created by users.