Design Overview for **Rare Treasure Hunter**

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GitHub Link: https://github.com/sharin-io/COS20007-CUSTOM-PROJECT

Summary of Program

Describe what you want the program to do… one or two paragraphs.

Rare Treasure Hunter is an interactive console-based simulation game that immerses players in the exciting role of a treasure hunter. Players embark on a journey across various countries, visiting shops and collecting rare items to complete quests. Each country presents unique challenges and opportunities, with specific items to find and shops offering distinct treasures.

The game begins with players receiving a quest to collect rare items from a country. Players earn coins by completing these quests, which can be used to travel to new destinations. As they progress, players must carefully manage their resources, prioritize items, and strategize their purchases to succeed. Each completed quest unlocks access to the next country, introducing new shops, collectibles, and gameplay opportunities.

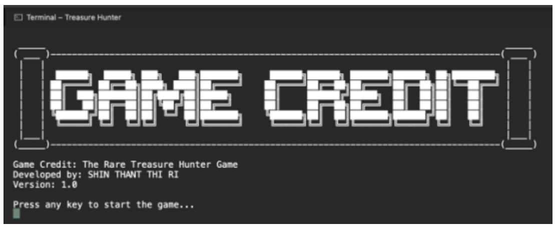
With its engaging mix of exploration, strategy, and progression, *The Rare Item Collector* offers an immersive experience that encourages players to think critically, manage resources wisely, and enjoy the thrill of discovery. The ultimate goal is to build an impressive collection of rare treasures while advancing through increasingly challenging locations.

Game Features (D-Level):

1. Basic Game Structure:
    - Main menu system with New Game, Load Game, and Exit options
    - Save game functionality
    - Game introduction and credits display
2. Player Management:
    - Create new player with custom name
    - Load existing player saves
    - Player inventory system

3. Location/Country System:
    - Multiple countries to visit
    - Country-specific quests and items
    - Progress tracking between countries
    - Multiple shops per country
4. Quest System:
    - Country-specific quest items to collect
    - Quest progress tracking
    - Quest completion checking
5. Shop System:
    - Multiple shops per country
    - Ability to visit different shops
    - Shop item interaction (implied in the code)

Include a sketch of sample output to illustrate your idea.



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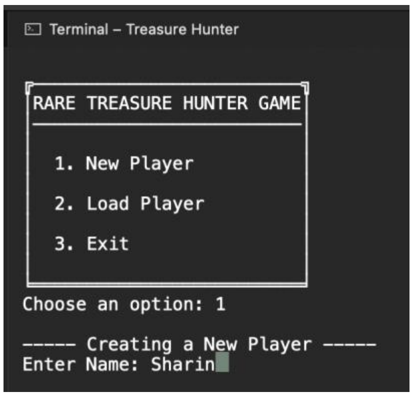
Game Credit: The Rare Treasure Hunter Game
Developed by: SHIN THANT THI RI
Version: 1.0

Press any key to start the game...
```

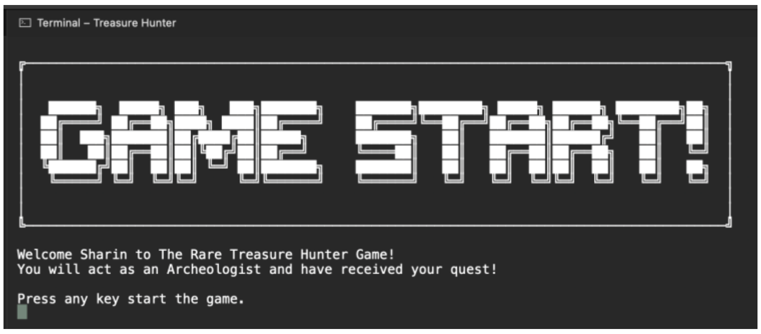


```
RARE TREASURE HUNTER GAME

  1. New Player
  2. Load Player
  3. Exit

Choose an option: 1

----- Creating a New Player -----
Enter Name: Sharin
```



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Welcome Sharin to The Rare Treasure Hunter Game!
You will act as an Archeologist and have received your quest!

Press any key start the game.
```

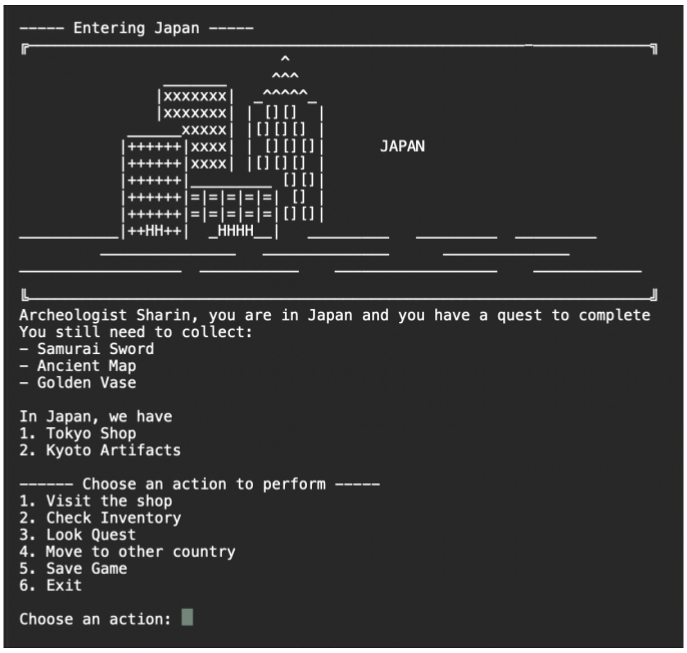

```
----- Entering Japan -----
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╚═══════════════════════════════════════════════════════════════════════╝
Archeologist Sharin, you are in Japan and you have a quest to complete
You still need to collect:
- Samurai Sword
- Ancient Map
- Golden Vase

In Japan, we have
1. Tokyo Shop
2. Kyoto Artifacts

------ Choose an action to perform -----
1. Visit the shop
2. Check Inventory
3. Look Quest
4. Move to other country
5. Save Game
6. Exit

Choose an action:
```

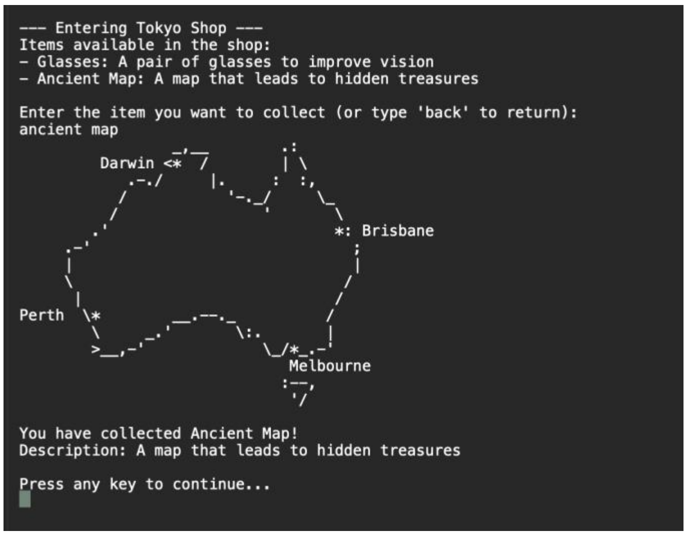

```
--- Entering Tokyo Shop ---
Items available in the shop:
- Glasses: A pair of glasses to improve vision
- Ancient Map: A map that leads to hidden treasures

Enter the item you want to collect (or type 'back' to return):
ancient map
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Perth  \*        __.--._          /
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        >__,-'            \_/*_.-'
                              Melbourne
                             :--,
                              '/

You have collected Ancient Map!
Description: A map that leads to hidden treasures

Press any key to continue...
```

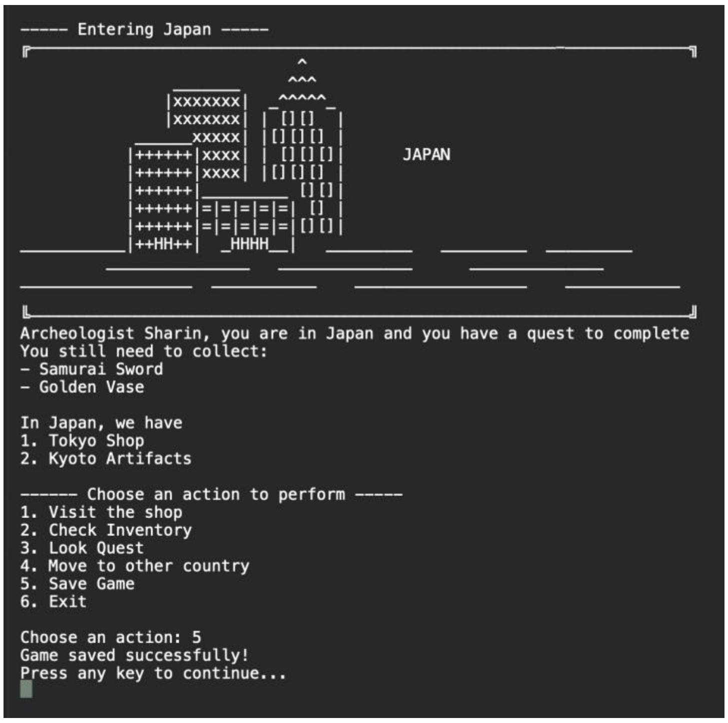

```
----- Entering Japan -----
╔────────────────────────────────────────────────────────────────────╗
                             ^
                ________    ^^^
               |xxxxxxx|  _^^^^^_
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            ______xxxxx| |[][][]  |
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╚────────────────────────────────────────────────────────────────────╝
Archeologist Sharin, you are in Japan and you have a quest to complete
You still need to collect:
- Samurai Sword
- Golden Vase

In Japan, we have
1. Tokyo Shop
2. Kyoto Artifacts

------ Choose an action to perform -----
1. Visit the shop
2. Check Inventory
3. Look Quest
4. Move to other country
5. Save Game
6. Exit

Choose an action: 5
Game saved successfully!
Press any key to continue...
```
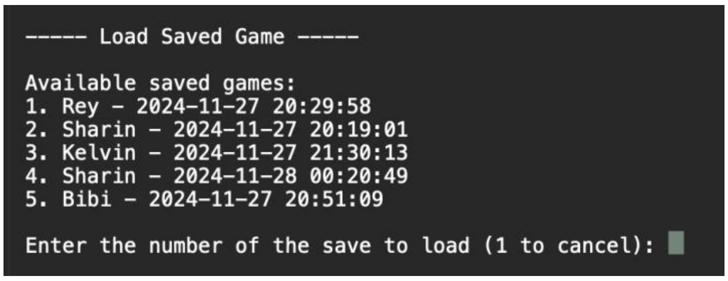
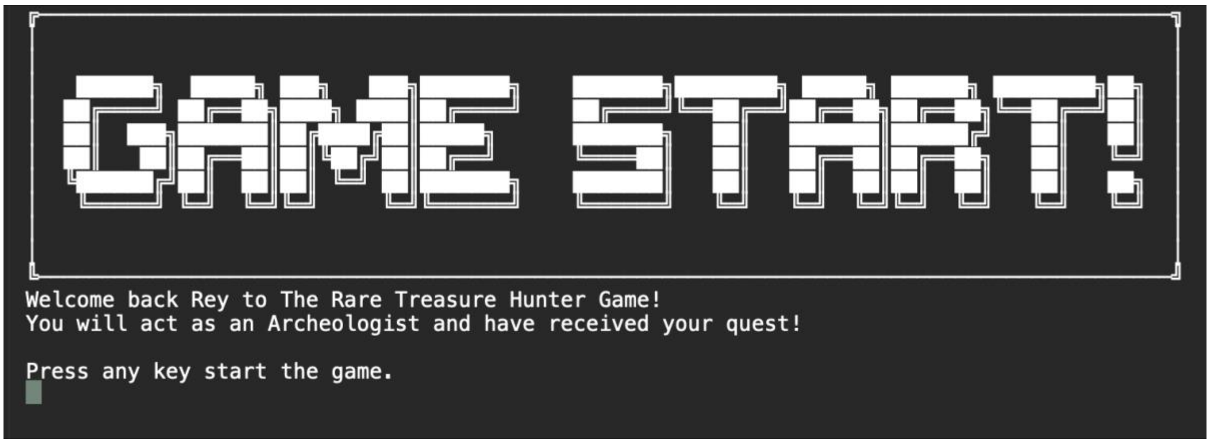
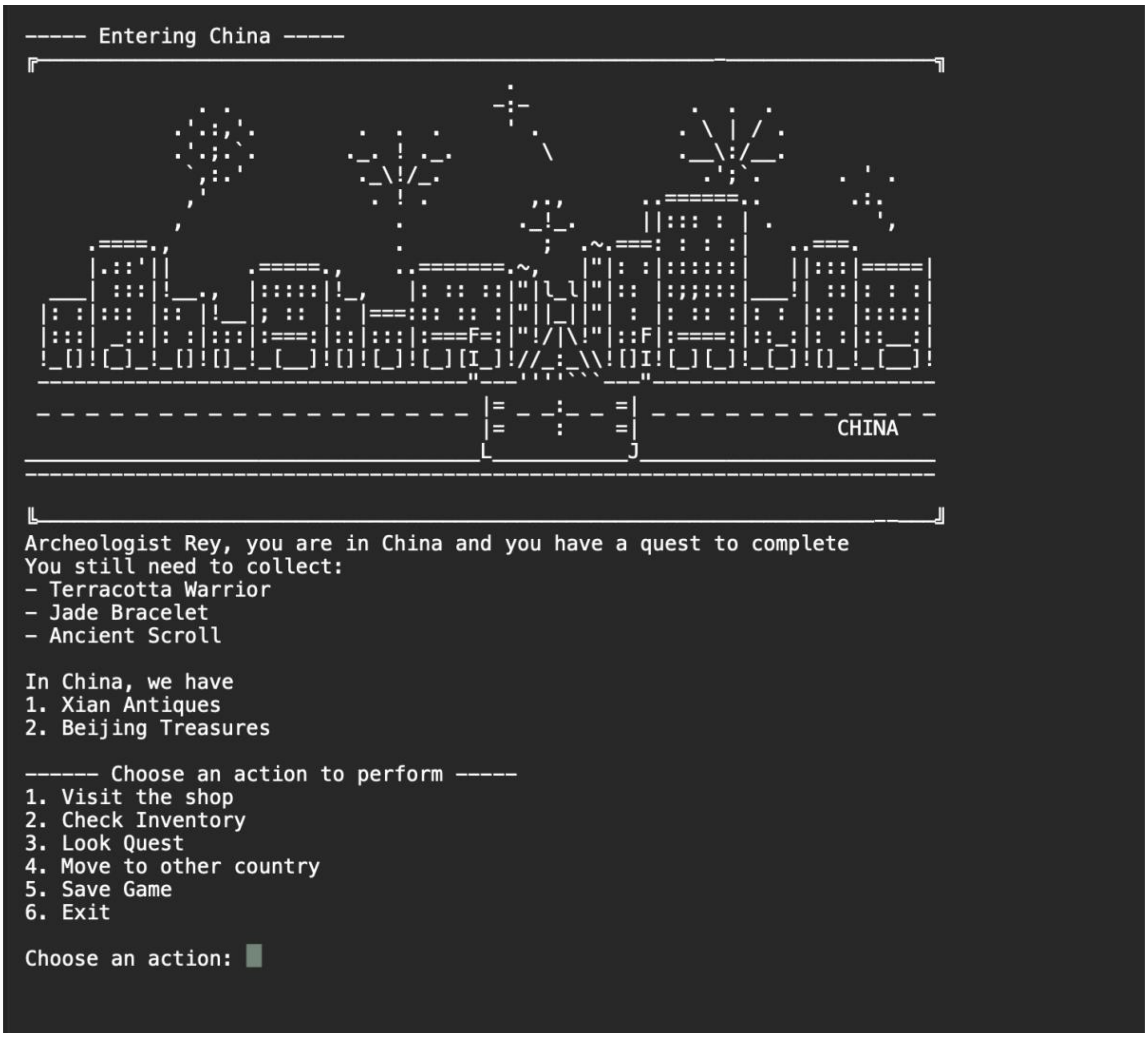



```
----- Load Saved Game -----

Available saved games:
1. Rey - 2024-11-27 20:29:58
2. Sharin - 2024-11-27 20:19:01
3. Kelvin - 2024-11-27 21:30:13
4. Sharin - 2024-11-28 00:20:49
5. Bibi - 2024-11-27 20:51:09

Enter the number of the save to load (1 to cancel):
```


```
Welcome back Rey to The Rare Treasure Hunter Game!
You will act as an Archeologist and have received your quest!

Press any key start the game.
```


```
----- Entering China -----
```

```
Archeologist Rey, you are in China and you have a quest to complete
You still need to collect:
- Terracotta Warrior
- Jade Bracelet
- Ancient Scroll

In China, we have
1. Xian Antiques
2. Beijing Treasures

------ Choose an action to perform -----
1. Visit the shop
2. Check Inventory
3. Look Quest
4. Move to other country
5. Save Game
6. Exit

Choose an action:
```

Required Roles

Describe each of the classes, interfaces, and any enumerations you will create. Use a different table to describe each role you will have, using the following table templates.

Table 1: GameManager details

Responsibility	**Type Details**	**Notes**
player	Player?	Manages the player's data, including inventory and coins.
currentCountry	Country?	Checks if the game item is available
countryProgression	CountryProgressionManager	Handles the progression and creation of new countries.
StartNewGame(string name)	void	Starts a new game with a player-created name.
TryProgressToNextCountry()	bool	Attempts to move the player to the next country if conditions are met.
VisitShop(IShop shop)	void	Enables interaction with a specified shop.
SaveCurrentGame()	void	Saves the current game state.
LoadGame(string fileName)	bool	Loads the game from a specified save file.

Table 2: Player details

Responsibility	**Type Details**	**Notes**
name	string	Represents the name of the player.
inventory	List<ICollectible>	Tracks all items collected by the player.
coins		

AddToInventory(ICollectible item)	void	Adds a collectible item to the player's inventory.
HasItem(string itemName)	bool	Checks if the player has a specific item in their inventory.

Table 3: CollectibleItem details

Responsibility	**Type Details**	**Notes**
name	string	Represents the name of the collectible item.
description	string	Describes the collectible item.
value	int	Returns the total number of coins the player has

Table 4: CountryProgressionManager details

Responsibility	**Type Details**	**Notes**
countryFactories	string	Represents the name of the collectible item.
currentCountryIndex	int	Describes the collectible item.
GetFirstCountry()	Country	Retrieves the first country in the progression.
GetNextCountry()	Country	Retrieves the next country in the sequence.
GetCountryByName(string)	Country	Finds and returns a country by its name.

HasMoreCountries()	bool	Checks if there are more countries to visit.

Table 5: Countrydetails

Responsibility	Type Details	Notes
name	string	Represents the name of the country.
shops	string	Holds all shops available in the country.
questItems	List<ICollectible>	Contains the rare items required to complete quests in this country.
AreAllQuestItemsCollected(Player)	bool	Checks if the player has collected all required items for the country

Table 6: Shop details

Responsibility	Type Details	Notes
name	string	Represents the name of the shop.
availableItems	List<ICollectible>	Contains all items currently available for purchase in the shop.
GetItem(string)	ICollectible	Retrieves a specific item by name from the shop's inventory.
RemoveItem(ICollectible)	void	Removes an item from the shop's inventory.

Table 7: IdentifiableObject deatils

Responsibility	Type Details	Notes
identifiers	string[]	Holds identifiers to uniquely recognize an object.
AreYou(string)	bool	Checks if the object matches a given identifier
FirstId()	string	Retrieves the first identifier of the object

Table 8: JapanCountryFactory deatils

Responsibility	Type Details	Notes
CreateCountry(	Country	Creates and returns a Country instance representing Japan.

Table 9: ChinaCountryFactory deatils

Responsibility	Type Details	Notes
CreateCountry(	Country	Creates and returns a Country instance representing China.

Table 10: ICollectible deatils

Responsibility	Type Details	Notes
name	string	Represents the name of the collectible item.
description	string	Provides a description of the collectible item.

value	int	Specifies the value of the item in coins.

Table 11: IShop deatils

Responsibility	Type Details	Notes
Name	string	Represents the name of the shop..
AvailableItems	List<ICollectible>	Lists all items currently available in the shop.
GetItem(string)	ICollectible	Retrieves an item by name.
RemoveItem(ICollectible)	void	Removes an item from the shop's inventory.

Table 12: ICountryFactory deatils

Responsibility	Type Details	Notes
CreateCountry()	Country	Creates a country instance.

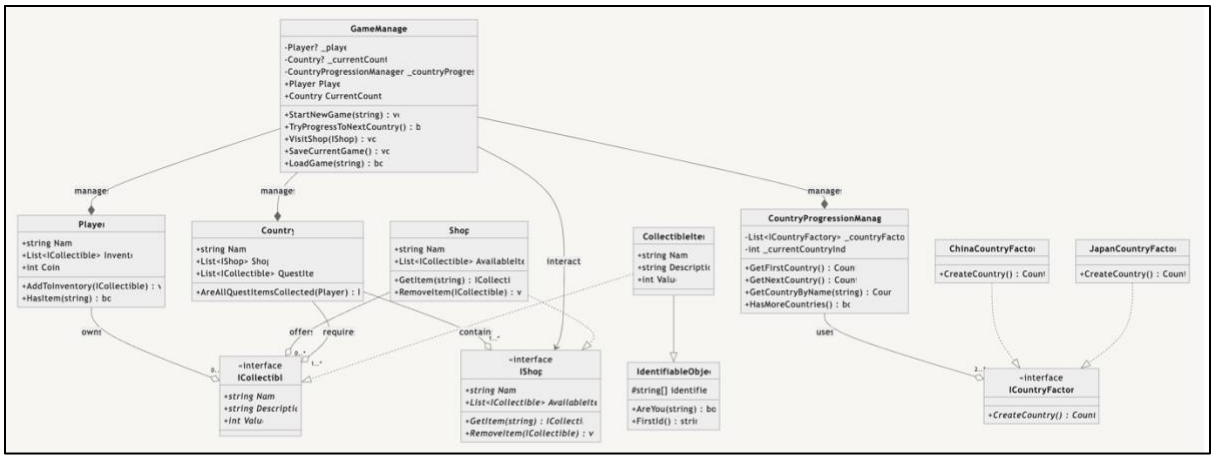
Enumeration Tables

Table: ItemType details

Value	Notes
Artifact	Represents historical or cultural items with significant value.
Jewelry	Represents decorative and valuable items, such as necklaces or rings.
Antique	Represents old, collectible furniture or objects of interest.
Relic	Represents sacred or ancient items with historical importance.
Other	Represents items that do not fit into the above categories but are still considered rare.

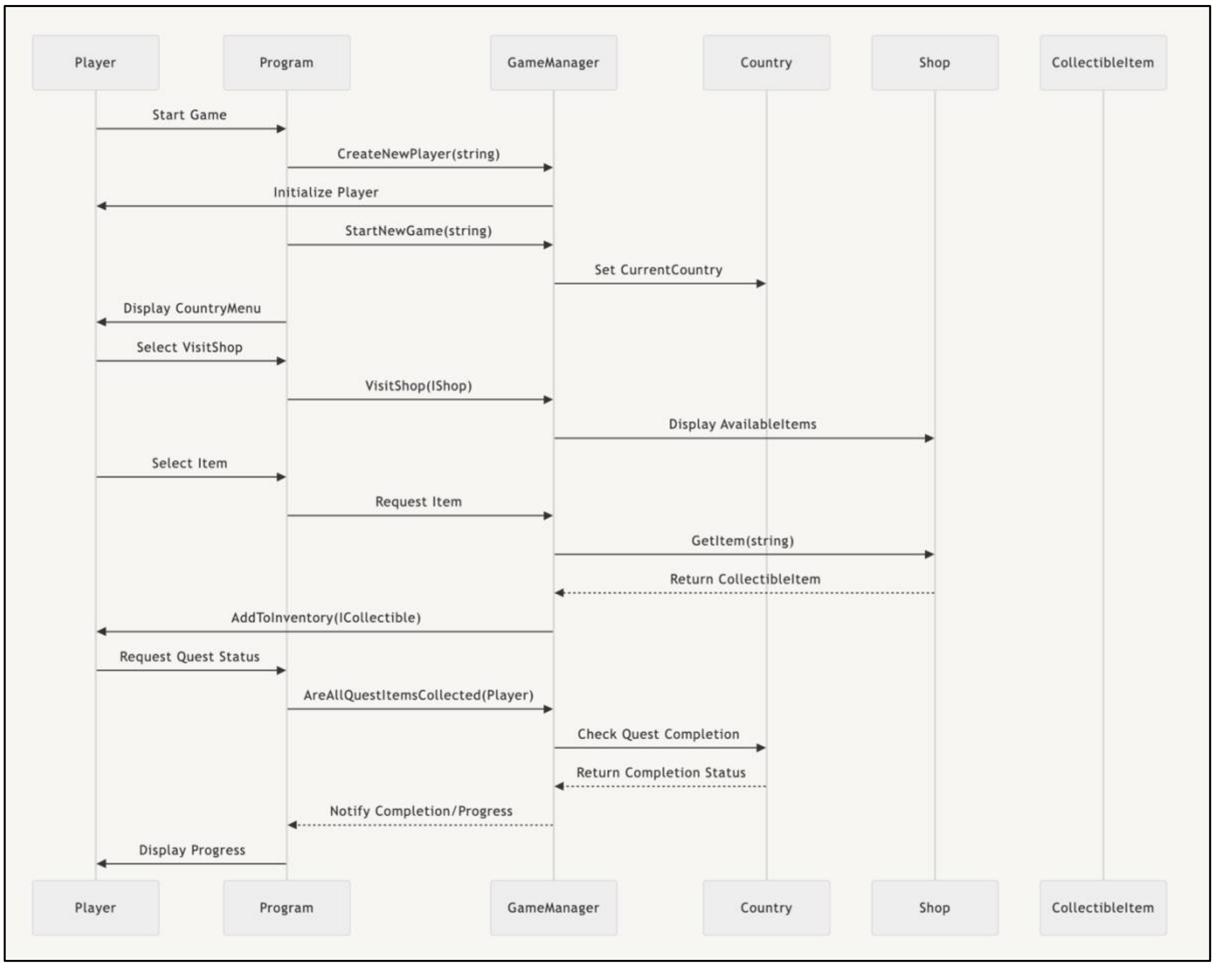
Class Diagram

Provide an initial design for your program in the form of a class diagram.



Sequence Diagram

Provide a sequence diagram showing how your proposed classes will interact to achieve a specific piece of functionality in your program.


Player
Program
GameManager
Country
Shop
CollectibleItem
Start Game
CreateNewPlayer(string)
Initialize Player
StartNewGame(string)
Set CurrentCountry
Display CountryMenu
Select VisitShop
VisitShop(IShop)
Display AvailableItems
Select Item
Request Item
GetItem(string)
Return CollectibleItem
AddToInventory(ICollectible)
Request Quest Status
AreAllQuestItemsCollected(Player)
Check Quest Completion
Return Completion Status
Notify Completion/Progress
Display Progress
Player
Program
GameManager
Country
Shop
CollectibleItem