Assignment: JavaScript Role-Playing Web Game

Total Points: 150

Objective:

Build a browser-based RPG (Role-Playing Game) using **JavaScript**, **HTML**, and **CSS**. The game will be text-driven and web-interactive, displaying storylines, choices, and battles directly on the page using buttons, images, canvas, and descriptive text. You must demonstrate mastery of **OOP**, **DOM manipulation**, **event handling**, **data storage**, and **file interaction with JSON**.

Game Concept:

Players will pick a **character class** (Warrior, Mage, Thief, Archer), then explore a fantasy world, battling enemies (Goblin, Troll, Evil Soldier, Soldier, Dragon), visiting locations, and collecting or trading items and weapons. The game must show descriptive narrative text on the screen, display relevant images, and update dynamically with every interaction.

Functional Requirements

- ◆ **Core Gameplay Mechanics (30 pts)**

  - Create a base `Character` class with properties like:

    - `name`, `health`, `attackPower`, `defense`, `level`

  - Create subclasses:

    - `Player` with class types (Warrior, Mage, Thief, Archer)

    - `Enemy` with enemy types (Goblin, Troll, Dragon, etc.)

  - Add methods:

- ○ `attack()`, `takeDamage()`, `heal()`, `levelUp()`, `skill()`

  - ○ Use **inner functions** where appropriate

Game Interface (20 pts)

- Use **DOM manipulation** to show:

  - ○ Story progression and choices

  - ○ Battle outcomes and text feedback

  - ○ Character stats and inventory on screen

- Use **HTML buttons** for user actions, not `prompt()` or `console.log()`

- Show a main panel or section where the adventure narrative is displayed

- Update dynamically as the player explores, fights, or interacts

◆ **Inventory System & Items (20 pts)**

- Use a composition-based `Inventory` class

- Create `Weapon` and `Armor` classes with stats

- Allow trading, earning, or buying items through gameplay choices

◆ **Canvas Integration (20 pts)**

- Use the `<canvas>` element to draw at least one visual:

  - ○ Health bars, battle effects, basic map, or item icons

- Must be updated as gameplay progresses

◆ **Game State Storage (20 pts)**

- Save and load player state using:

○ `JSON.stringify()` and `localStorage`

● Include buttons for **Save Game** and **Load Game**

◆ **Use of JSON File (30 pts)**

● Create a **`data.json`** file:

○ Must include starting data for player classes, items, or enemies

● Load this file with `fetch()` and use it in-game

◆ **Visuals and Story Elements (10 pts)**

● Use **images** for characters, enemies, or locations

● Text descriptions must appear as part of the game interface

● Provide 3–5 different locations for the player to visit

● Offer meaningful choices that affect gameplay

Interface Requirements

● **index.html**: Webpage layout with images, story panel, buttons, and canvas

● **style.css**: Clean and readable layout; fantasy or medieval theme encouraged

● **main.js**: All game logic

● **data.json**: Data used to initialize enemies, player classes, items, etc.

Submission Format

Submit a ZIP folder with:

- `index.html`

- `style.css`

- `main.js`

- `data.json`

- Any additional images used

Saving Game State to localStorage example
```
function saveGame() {
   const player = {
      name: "Arthas",
      class: "Warrior",
      health: 90,
      level: 6,
      inventory: ["Sword", "Potion"]
   };
   localStorage.setItem("savedPlayer", JSON.stringify(player));
   alert("Game saved!");
}
```

Loading Game State from localStorage example
```
function loadGame() {
   const data = localStorage.getItem("savedPlayer");
   if (data) {
      const player = JSON.parse(data);
      alert(`Loaded Player: ${player.name}, Level ${player.level}`);
   } else {
      alert("No saved game found.");
   }
}
```

Example: `data.json`

```json
{
  "playerClasses": [
    {
      "class": "Warrior",
      "health": 150,
      "attackPower": 20,
      "defense": 10,
      "skill": "Power Strike"
    },
    {
      "class": "Mage",
      "health": 100,
      "attackPower": 30,
      "defense": 5,
      "skill": "Fireball"
    },
    {
      "class": "Thief",
      "health": 110,
      "attackPower": 18,
      "defense": 8,
      "skill": "Backstab"
    },
    {
      "class": "Archer",
      "health": 120,
      "attackPower": 22,
      "defense": 6,
      "skill": "Arrow Storm"
    }
  ],

  "enemies": [
    {
      "name": "Goblin",
      "health": 50,
      "attackPower": 10,
      "defense": 2
    },
    {
      "name": "Troll",
      "health": 100,
```

```json
      "attackPower": 15,
      "defense": 5
    },
    {
      "name": "Evil Soldier",
      "health": 120,
      "attackPower": 18,
      "defense": 7
    },
    {
      "name": "Soldier",
      "health": 90,
      "attackPower": 14,
      "defense": 6
    },
    {
      "name": "Dragon",
      "health": 200,
      "attackPower": 30,
      "defense": 12
    }
  ],

  "weapons": [
    {
      "name": "Iron Sword",
      "power": 10,
      "cost": 100
    },
    {
      "name": "Fire Staff",
      "power": 15,
      "cost": 150
    },
    {
      "name": "Dagger",
      "power": 8,
      "cost": 80
    },
    {
      "name": "Longbow",
      "power": 12,
      "cost": 120
    }
```

```json
    ],

    "armor": [
      {
        "name": "Leather Armor",
        "defense": 5,
        "cost": 100
      },
      {
        "name": "Chainmail",
        "defense": 10,
        "cost": 200
      }
    ],

    "locations": [
      {
        "name": "Forest",
        "description": "A dark, dense forest full of lurking goblins.",
        "enemyTypes": ["Goblin", "Troll"]
      },
      {
        "name": "Castle Ruins",
        "description": "The haunted remains of an ancient battleground.",
        "enemyTypes": ["Evil Soldier", "Soldier"]
      },
      {
        "name": "Mountain Cave",
        "description": "A dragon's lair hidden deep within the mountains.",
        "enemyTypes": ["Dragon"]
      },
      {
        "name": "Village Market",
        "description": "A place to trade goods and rest.",
        "enemyTypes": []
      }
    ]
  }
```