Digital Empowerment Pakistan

Internship Batch 3 DEN

Domain:
C++ programming

task :05

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Task3:

Text-Based Adventure Game

Overview:

Design an interactive text-based adventure game where players navigate through different scenarios, make decisions, and progress based on their choices. Incorporate branching narratives, character interactions, and game mechanics.

Skills Developed:

- Conditional statements and loops

- User input validation

- Game design and logic implementation

Solution:

Code:

```cpp
#include <iostream>
#include <string>
#include <vector>
#include <cstdlib> // For exit()
#include <thread>  // For sleep (optional if you want to implement timed events)
#include <chrono>  // For sleep (optional)

using namespace std;

// Function prototypes
void villageScenario();
void forestScenario();
void caveScenario();
void castleScenario();
void combat();
void inventoryMenu();
void checkEnding();
void lockedDoorScenario();
void combineItems();
void timedEvent();
void talkToOldMan();

// Inventory system
vector<string> inventory;

// Player stats
int playerHealth = 100;
int enemyHealth = 50;
bool hasMagicSword = false;
bool helpedKing = false;
bool gameRunning = true;
```

```cpp
// Function to check if an item is in the inventory
bool hasItem(string item) {
    for (string i : inventory) {
        if (i == item) {
            return true;
        }
    }
    return false;
}

// Introduction to the game
void introduction() {
    cout << "\nWelcome to the mystical land of Eldoria!" << endl;
    cout << "You wake up in a small village with no memory of how you got here." << endl;
    cout << "What do you want to do?" << endl;
    cout << "1. Explore the village" << endl;
    cout << "2. Head into the forest" << endl;
    cout << "3. Visit the castle" << endl;
    cout << "4. Check your inventory" << endl;
    cout << "5. Talk to the old man by the well" << endl;
    cout << "6. Combine items" << endl;
    cout << "7. Go to the cave" << endl;
    cout << "Enter your choice: ";
}

// The village scenario
void villageScenario() {
    int choice;
    cout << "\nYou explore the village and find an abandoned house." << endl;
    cout << "Do you:" << endl;
    cout << "1. Enter the house" << endl;
    cout << "2. Continue walking through the village" << endl;

    cin >> choice;

    if (choice == 1) {
        cout << "\nYou enter the house and find a rusty key." << endl;
        cout << "You take the key." << endl;
        inventory.push_back("Rusty Key");
    } else if (choice == 2) {
        cout << "\nYou continue exploring the village but find nothing of interest." << endl;
    } else {
        cout << "\nInvalid choice. Try again." << endl;
        villageScenario();
    }
}

// The forest scenario
void forestScenario() {
    int choice;
    cout << "\nYou head into the forest and hear rustling in the bushes." << endl;
    cout << "Do you:" << endl;
    cout << "1. Investigate the noise" << endl;
    cout << "2. Run back to the village" << endl;
    cin >> choice;

    if (choice == 1) {
        cout << "\nYou investigate the noise and encounter a wild beast!" << endl;
        combat();
    } else if (choice == 2) {
        cout << "\nYou run back to the village safely." << endl;
    } else {
        cout << "\nInvalid choice. Try again." << endl;
        forestScenario();
    }
}
```

```cpp
// The cave scenario (optional use of an item)
void caveScenario() {
    if (hasItem("Rusty Key")) {
        cout << "\nYou find a locked door inside the cave." << endl;
        cout << "Use the Rusty Key to open the door? (yes/no): ";
        string choice;
        cin >> choice;

        if (choice == "yes") {
            cout << "\nYou open the door and find a treasure chest filled with gold!" << endl;
        } else {
            cout << "\nYou decide not to use the key and leave the cave." << endl;
        }
    } else {
        cout << "\nYou find a locked door but you don't have the key." << endl;
    }
}

// The castle scenario
void castleScenario() {
    int choice;
    cout << "\nYou arrive at the grand castle gates. A guard asks for your business." << endl;
    cout << "1. Request an audience with the king." << endl;
    cout << "2. Attempt to sneak inside the castle." << endl;
    cin >> choice;

    if (choice == 1) {
        cout << "\nThe king grants you an audience and gives you a quest to retrieve a magical item." << endl;
        helpedKing = true; // Update the quest progress
    } else if (choice == 2) {
        cout << "\nYou are caught and thrown into the dungeon!" << endl;
    } else {
        cout << "\nYou are caught and thrown into the dungeon!" << endl;
    } else {
        cout << "\nInvalid choice. Try again." << endl;
        castleScenario();
    }
}

// Inventory system
void inventoryMenu() {
    if (inventory.empty()) {
        cout << "\nYour inventory is empty." << endl;
    } else {
        cout << "\nInventory: ";
        for (string item : inventory) {
            cout << item << " ";
        }
        cout << endl;
    }
}

// Combat system
void combat() {
    cout << "\nCombat begins!" << endl;
    while (playerHealth > 0 && enemyHealth > 0) {
        cout << "\n1. Attack" << endl;
        cout << "2. Run away" << endl;
        int choice;
        cin >> choice;

        if (choice == 1) {
            enemyHealth -= 10;
            cout << "You hit the beast! Its health is now " << enemyHealth << endl;
```

```cpp
                cout << "You hit the beast! Its health is now " << enemyHealth << endl;
                playerHealth -= 5;
                cout << "The beast attacks! Your health is now " << playerHealth << endl;
            } else if (choice == 2) {
                cout << "\nYou ran away safely." << endl;
                return; // Exit combat
            } else {
                cout << "\nInvalid choice. Try again." << endl;
            }

            if (enemyHealth <= 0) {
                cout << "\nYou defeated the beast!" << endl;
            } else if (playerHealth <= 0) {
                cout << "\nYou were defeated. Game over." << endl;
                exit(0);
            }
        }
    }
}

// Check game ending
void checkEnding() {
    if (hasMagicSword && helpedKing) {
        cout << "\nYou return to the kingdom as a hero, with the magical sword in hand." << endl;
    } else if (helpedKing) {
        cout << "\nYou helped the king, but failed to retrieve the magical sword." << endl;
    } else {
        cout << "\nYou leave the kingdom without helping the king. The kingdom falls into darkness." << endl;
    }
    gameRunning = false;
}

    gameRunning = false;
}

// Locked door puzzle
void lockedDoorScenario() {
    if (hasItem("Rusty Key")) {
        cout << "\nYou find a locked door. Use the Rusty Key? (yes/no): ";
        string choice;
        cin >> choice;
        if (choice == "yes") {
            cout << "\nYou open the door and find treasure!" << endl;
        } else {
            cout << "\nYou walk away." << endl;
        }
    } else {
        cout << "\nThe door is locked and you don't have the key." << endl;
    }
}

// Combine items in the inventory
void combineItems() {
    if (hasItem("Stick") && hasItem("Flint")) {
        cout << "\nYou combine the stick and flint to make a fire!" << endl;
        inventory.push_back("Fire");
    } else {
        cout << "\nYou don't have the necessary items to combine." << endl;
    }
}

// Timed event scenario (optional)
void timedEvent() {
    cout << "\nThe building is on fire! You have 10 seconds to escape!" << endl;
```

```cpp
    for (int i = 10; i > 0; i--) {
        cout << i << " seconds left!" << endl;
        this_thread::sleep_for(chrono::seconds(1)); // Simulate time passing
    }
    cout << "You made it out just in time!" << endl;
}

// Dialogue with NPC
void talkToOldMan() {
    cout << "\nYou meet an old man by the well. He seems to know a lot about the land." << endl;
    cout << "1. Ask him about the village." << endl;
    cout << "2. Ask him for help." << endl;
    int choice;
    cin >> choice;

    if (choice == 1) {
        cout << "\nThe old man tells you about the village's history and its hidden secrets." << endl;
    } else if (choice == 2) {
        cout << "\nThe old man gives you a magical amulet to aid in your quest." << endl;
        inventory.push_back("Magical Amulet");
    } else {
        cout << "\nInvalid choice. Try again." << endl;
        talkToOldMan();
    }
}

// Main game loop
int main() {
    int choice;

    while (gameRunning) {
        introduction();
```

```cpp
        cin >> choice;

        switch (choice) {
            case 1:
                villageScenario();
                break;
            case 2:
                forestScenario();
                break;
            case 3:
                castleScenario();
                break;
            case 4:
                inventoryMenu();
                break;
            case 5:
                talkToOldMan();
                break;
            case 6:
                combineItems();
                break;
            case 7:
                caveScenario();
                break;
            default:
                cout << "\nInvalid choice. Try again." << endl;
                break;
        }

        if (!gameRunning) {
            break;
        }

        if (!gameRunning) {
            break;
        }

        cout << "\nDo you want to check your ending? (yes/no): ";
        string endCheck;
        cin >> endCheck;
        if (endCheck == "yes") {
            checkEnding();
        }
    }

    return 0;
}
```

Output:

```
Welcome to the mystical land of Eldoria!
You wake up in a small village with no memory of how you got here.
What do you want to do?
1. Explore the village
2. Head into the forest
3. Visit the castle
4. Check your inventory
5. Talk to the old man by the well
6. Combine items
7. Go to the cave
Enter your choice: 1

You explore the village and find an abandoned house.
Do you:
1. Enter the house
2. Continue walking through the village
1

You enter the house and find a rusty key.
You take the key.

Do you want to check your ending? (yes/no): no

Welcome to the mystical land of Eldoria!
You wake up in a small village with no memory of how you got here.
What do you want to do?
1. Explore the village
2. Head into the forest
3. Visit the castle
```

```
7. Go to the cave
Enter your choice: 1

You explore the village and find an abandoned house.
Do you:
1. Enter the house
2. Continue walking through the village
2

You continue exploring the village but find nothing of interest.

Do you want to check your ending? (yes/no): no

Welcome to the mystical land of Eldoria!
You wake up in a small village with no memory of how you got here.
What do you want to do?
1. Explore the village
2. Head into the forest
3. Visit the castle
4. Check your inventory
5. Talk to the old man by the well
6. Combine items
7. Go to the cave
Enter your choice: 2

You head into the forest and hear rustling in the bushes.
Do you:
1. Investigate the noise
2. Run back to the village
```

```
5. Talk to the old man by the well
6. Combine items
7. Go to the cave
Enter your choice: 2

You head into the forest and hear rustling in the bushes.
Do you:
1. Investigate the noise
2. Run back to the village
1

You investigate the noise and encounter a wild beast!

Combat begins!

1. Attack
2. Run away
1
You hit the beast! Its health is now 40
The beast attacks! Your health is now 95

1. Attack
2. Run away
1
You hit the beast! Its health is now 30
The beast attacks! Your health is now 90
```

```
You hit the beast! Its health is now 20
The beast attacks! Your health is now 85

1. Attack
2. Run away
1
You hit the beast! Its health is now 10
The beast attacks! Your health is now 80

1. Attack
2. Run away
1
You hit the beast! Its health is now 0
The beast attacks! Your health is now 75

You defeated the beast!

Do you want to check your ending? (yes/no): no

Welcome to the mystical land of Eldoria!
You wake up in a small village with no memory of how you got here.
What do you want to do?
1. Explore the village
2. Head into the forest
3. Visit the castle
4. Check your inventory
5. Talk to the old man by the well
6. Combine items
7. Go to the cave
Enter your choice:
```

```
You defeated the beast!

Do you want to check your ending? (yes/no): no

Welcome to the mystical land of Eldoria!
You wake up in a small village with no memory of how you got here.
What do you want to do?
1. Explore the village
2. Head into the forest
3. Visit the castle
4. Check your inventory
5. Talk to the old man by the well
6. Combine items
7. Go to the cave
Enter your choice: 3

You arrive at the grand castle gates. A guard asks for your business.
1. Request an audience with the king.
2. Attempt to sneak inside the castle.
1

The king grants you an audience and gives you a quest to retrieve a magical item.

Do you want to check your ending? (yes/no): yes

You helped the king, but failed to retrieve the magical sword.
```

```
Welcome to the mystical land of Eldoria!
You wake up in a small village with no memory of how you got here.
What do you want to do?
1. Explore the village
2. Head into the forest
3. Visit the castle
4. Check your inventory
5. Talk to the old man by the well
6. Combine items
7. Go to the cave
Enter your choice: 4

Your inventory is empty.

Do you want to check your ending? (yes/no): yes

You leave the kingdom without helping the king. The kingdom falls into darkness.

--------------------------------
Process exited after 22.87 seconds with return value 0
Press any key to continue . . .
```

```
What do you want to do?
1. Explore the village
2. Head into the forest
3. Visit the castle
4. Check your inventory
5. Talk to the old man by the well
6. Combine items
7. Go to the cave
Enter your choice: 5

You meet an old man by the well. He seems to know a lot about the land.
1. Ask him about the village.
2. Ask him for help.
1

The old man tells you about the village's history and its hidden secrets.

Do you want to check your ending? (yes/no): no

Welcome to the mystical land of Eldoria!
You wake up in a small village with no memory of how you got here.
What do you want to do?
1. Explore the village
2. Head into the forest
3. Visit the castle
4. Check your inventory
5. Talk to the old man by the well
6. Combine items
7. Go to the cave
```

```
The old man tells you about the village's history and its hidden secrets.

Do you want to check your ending? (yes/no): no

Welcome to the mystical land of Eldoria!
You wake up in a small village with no memory of how you got here.
What do you want to do?
1. Explore the village
2. Head into the forest
3. Visit the castle
4. Check your inventory
5. Talk to the old man by the well
6. Combine items
7. Go to the cave
Enter your choice: 6

You don't have the necessary items to combine.

Do you want to check your ending? (yes/no): yes

You leave the kingdom without helping the king. The kingdom falls into darkness.

--------------------------------
Process exited after 57.72 seconds with return value 0
Press any key to continue . . .
Welcome to the mystical land of Eldoria!
You wake up in a small village with no memory of how you got here.
What do you want to do?
1. Explore the village
2. Head into the forest
3. Visit the castle
4. Check your inventory
5. Talk to the old man by the well
6. Combine items
7. Go to the cave
Enter your choice: 7

You find a locked door but you don't have the key.

Do you want to check your ending? (yes/no): no

Welcome to the mystical land of Eldoria!
You wake up in a small village with no memory of how you got here.
What do you want to do?
1. Explore the village
2. Head into the forest
3. Visit the castle
4. Check your inventory
5. Talk to the old man by the well
6. Combine items
7. Go to the cave
Enter your choice:
```

```
You find a locked door but you don't have the key.

Do you want to check your ending? (yes/no): no

Welcome to the mystical land of Eldoria!
You wake up in a small village with no memory of how you got here.
What do you want to do?
1. Explore the village
2. Head into the forest
3. Visit the castle
4. Check your inventory
5. Talk to the old man by the well
6. Combine items
7. Go to the cave
Enter your choice: 3

You arrive at the grand castle gates. A guard asks for your business.
1. Request an audience with the king.
2. Attempt to sneak inside the castle.
2

You are caught and thrown into the dungeon!

Do you want to check your ending? (yes/no):
```

```
Welcome to the mystical land of Eldoria!
You wake up in a small village with no memory of how you got here.
What do you want to do?
1. Explore the village
2. Head into the forest
3. Visit the castle
4. Check your inventory
5. Talk to the old man by the well
6. Combine items
7. Go to the cave
Enter your choice: 1

You explore the village and find an abandoned house.
Do you:
1. Enter the house
2. Continue walking through the village
1

You enter the house and find a rusty key.
You take the key.

Do you want to check your ending? (yes/no): no

Welcome to the mystical land of Eldoria!
You wake up in a small village with no memory of how you got here.
What do you want to do?
1. Explore the village
2. Head into the forest
3. Visit the castle
```

```
You enter the house and find a rusty key.
You take the key.

Do you want to check your ending? (yes/no): no

Welcome to the mystical land of Eldoria!
You wake up in a small village with no memory of how you got here.
What do you want to do?
1. Explore the village
2. Head into the forest
3. Visit the castle
4. Check your inventory
5. Talk to the old man by the well
6. Combine items
7. Go to the cave
Enter your choice: 7

You find a locked door inside the cave.
Use the Rusty Key to open the door? (yes/no): yes

You open the door and find a treasure chest filled with gold!

Do you want to check your ending? (yes/no): yes

You leave the kingdom without helping the king. The kingdom falls into darkness.
```

Explanation:

This C++ code is an interactive **text-based adventure game** where players explore different scenarios, interact with characters, solve puzzles, and fight enemies. The game includes branching narratives, an inventory system, and multiple possible endings depending on player choices.

 Key Components of the Code

1. **Introduction**:
   - o The player starts in a village with no memory and can choose where to go: explore the village, head into the forest, visit the castle, or check the inventory.
   - o The game provides choices that direct the player into different scenarios.
2. **Inventory System**:
   - o The player's inventory is stored in a vector<string> called inventory. Items collected during the game (like keys or amulets) are added here.
   - o Players can view their inventory using the inventoryMenu() function, and some puzzles or scenarios require specific items from the inventory.
3. **Scenario Functions**:
   - o **Village Scenario (villageScenario)**: The player can explore the village and find a rusty key, which is useful later in the cave scenario.
   - o **Forest Scenario (forestScenario)**: The player can explore the forest and encounter a wild beast, leading to a combat sequence.
   - o **Cave Scenario (caveScenario)**: If the player has the "Rusty Key" (acquired in the village), they can unlock a door in the cave to find treasure.

- o **Castle Scenario (castleScenario)**: The player can either request an audience with the king and receive a quest or attempt to sneak into the castle, which may result in failure.
- o **Old Man Interaction (talkToOldMan)**: The player can speak to an old man in the village for lore or to receive a helpful magical amulet.

4. **Combat System**:
   - o The player engages in combat with an enemy (wild beast) in the forest scenario. Each round, the player can choose to attack or run away.
   - o Player health (playerHealth) and enemy health (enemyHealth) are tracked. If the enemy's health reaches 0, the player wins; if the player's health reaches 0, the game ends with a defeat.

5. **Puzzles**:
   - o In the cave, the player encounters a locked door puzzle that can only be solved if they have the "Rusty Key."
   - o There's also an item combination system (combineItems()), where the player can combine certain items like a "Stick" and "Flint" to make a fire.

6. **Timed Event**:
   - o A timed scenario (timedEvent()) involves escaping a building on fire, with a 10-second countdown. The player must react in time to survive.

7. **Multiple Endings**:
   - o The game has several possible endings based on the player's choices and actions:
     - ▪ If the player retrieves a magical sword and helps the king, they return as a hero.
     - ▪ If they help the king but fail to retrieve the sword, they get a less favorable ending.
     - ▪ If they neither help the king nor retrieve the sword, the kingdom falls into darkness.

8. **Game Loop**:
   - o The game runs in a loop (while (gameRunning)), where the player repeatedly chooses what to do. The loop only ends when the player triggers an ending.
   - o After each scenario or event, the player is asked whether they want to check their ending. If the player selects "yes," the game runs the checkEnding() function, which determines the ending based on their actions.

Code Structure:

- **Function Prototypes**: Lists all the functions used before the main() function definition.
- **Player Stats**: Health, inventory, quest progress (e.g., helpedKing), and other attributes like whether the game is running.
- **Game Interaction**: The player interacts with the game by making choices using simple numeric input.
- **Switch Statements**: Used to navigate between different game scenarios based on player input.

Summary

The game is a simple but expandable text-based adventure that includes multiple interactions, scenarios, and combat mechanics. The player navigates through choices

1

and experiences a story that evolves based on their decisions, with the potential to lead to different outcomes based on the items they collect and how they engage with characters and events.