PROJECT 3 - MURDER MYSTERY

*** 1 player game ***

Point of the game
Be the first to guess who did it, with what weapon, and in what room. The user must also try to earn the LEAST amount of points possible. The more points the user has, the more likely they are to lose the game.

Note: each turn the user has, they gain 1 point

Classes

```cpp
class Character{
private:
    int points;
    int power;
    bool innocence;
    vector<string> evidence;
    string name;
    string room;

public:
    Character();
    Character(string newName, int newPoints, bool newInnocence, vector<string>
newEvidence, int newPower);

    int getPoints();
    void setPoints(int newPoints);

    bool getInnocence();
    void setInnoncence(bool newInnocence);

    vector<string> getEvidence();
    void setEvidence(vector<string> newEvidence);

    string getName();
    void setName(string newName);

    string getRoom();
    void setRoom(string newRoom);

    int getPower();
    void setPower(int newPower);
```

```cpp
};
class Weapon{
private:
    string name;
    bool innocence;

public:
    Weapon();
    Weapon(string newName, bool newInnoncence);

    string getName();
    void setName(string newName);

    bool getInnocence();
    void setInnocence(bool newInnocence);
};
```

```cpp
class Room{
private:
    string name;
    bool innocence;

public:
    Room();
    Room(string newName, bool newInnocence);

    string getName();
    void setName(string newName);

    bool getInnocence();
    void setInnocence(bool newInnocence);
};
```

```cpp
class Gameplay{
private:
    Character characters[4];
    Weapon weapons[8];
    Room rooms[7];
    string murderer;
    string theWeapon;
```

```
    string theRoom;

public:
    Gameplay();
    Gameplay(Character newCharacters[], Weapon newWeapons[], Room newRooms[], string
newMurderer, string newTheWeapon, string newTheRoom);

    string getCharacterAt(int index);
    void setCharacterAt(string newCharacter, int index);

    string getWeaponAt(int index);
    void setWeaponAt(string newWeapon, int index);

    string getRoomAt(int index);
    void setRoomAt(string newRoom, int index);

    string getMurderer();
    void setMurderer(string newMurderer);

    string getTheWeapon();
    void setTheWeapon(string newTheWeapon);

    string getTheRoom();
    void setTheRoom(string newTheRoom);

    void PrintChecklist();
};
```

The Menu
========= MENU =========
1. Move
   A. Roll Dice
   B. Pick Your Own
2. Get Player Stats
3. Guess
   A. Make a Hypothesis
   B. Make a Conclusion
4. Show Evidence
5. Show Checklist
   A. Change Status?
6. Quit
========================

Explanation:
- 1A.
  - this option will go into the rooms array and randomly pick three rooms you can go in
  - each room will be worth a certain number of points (1-3 points)
- 1B.
  - this option allows you to pick a room of your choice, but it is 5 points
- 2.
  - this option allows you to choose a character to see their current stats (name, innocence, points)
- 3A.
  - the user will select this option when they are in a room and want to make a hypothesis to a character
  - the character will then present them with evidence (if applicable)
- 3B.
  - the user will select this option when they have come to a final conclusion
  - if they guess wrong --> 15 points will be added
  - if they guess wrong twice --> the game is over and they lose
  - if they guess right --> they win the game
- 4.
  - this option will print the evidence the user has
  - if a character makes a hypothesis to the user, the user can present them with evidence (if applicable)
- 5.
  - this option will print a checklist (in other word the user's deductions)
  - it will look something like this:

  ======= NOTES =======
  Character 1: guilty
  Character 2: guilty
  Character 3: guilty
  Character 4: guilty

  Weapon 1: guilty
  Weapon 2: guilty
  Weapon 3: guilty
  Weapon 4: guilty
  Weapon 5: guilty
  Weapon 6: guilty
  Weapon 7: guilty
  Weapon 8: guilty

  Room 1: guilty

Room 2: guilty
                Room 3: guilty
                Room 4: guilty
                Room 5: guilty
                Room 6: guilty
                Room 7: guilty
                ====================

        note: everything is set to guilty by default, if the user is shown evidence that proves
            something is innocent, they can change their notes to innocent
- 5A.
    - after the checklist is printed, the code will ask the user if they want to change
        their notes
    - if yes --> they type in the element they want to change (ex: Character2), they can
        then change it to innocent or guilty
    - if no --> the code will continue on
- 6.
    - this ends the game

User Stats
Every turn, the user's stats will be printed and will look something like this:

======== STATS ========
Name: Summer Edwards
Points: 12
Innocence: guilty
Location: Dining Room
Evidence: Character2, Weapon3, Weapon1
======================

Code Skeleton
***The following bullet points will describe how the game is set up:
- print background story and introduce characters

- ask user to pick a character or create their own:
    - characters are stored in a .txt file
    - if they create their own --> write character to the .txt file

- once they choose/create a character, a character description will be printed (create your
    own characters will have a default description)

- NOTE: the total # of characters in the game will always be 4

- - ○ if character is created & written to .txt file, only 4 characters will be stored in the characters array

  - ● code will then read elements from characters.txt, weapons.txt, and rooms.txt and store them in their appropriate arrays

  - ● code will go through each array and randomly select 1 element from each to represent who did it, where, and with what weapon (I will refer these to be in the "File")
    - ○ these will be stored as the murderer, theWeapon, and theRoom in the Gameplay class

  - ● each array will then be assigned to the Gameplay class
    - ○ these arrays will work as a checklist, once the user determines someone/something/some place is innocent, the user can change the status of that element to innocent (printChecklist())

  - ● four vectors will be created to represent evidence
    - ○ elements that are NOT in the "File" will be divided up and placed into these vectors
    - ○ each vector will then be assigned to a character (4 vectors, 4 characters)
    - ○ when someone asks a character "[name] did it with a [weapon] in the [room]", the code will filter through the character's evidence to see if any of their evidence matches the description
      - ■ if it matches --> print the evidence, and delete the element from the vector
      - ■ if nothing matches --> print "no new evidence found"

***After everything is assigned to their appropriate classes, the following will run:
int playerTurn = 1

print "it's your turn, please enter the numerical value:
1. next"
GET choice

while(choice != 6){
   if playerTurn = 1:
      print user's stats

      print "Select a numerical option:" and print the menu

      switch(choice){
      case 1:
         print "select a numerical option:"
         1. Roll Dice

2. Pick Your own

GET option

if option == 1:
    roomSelect(); // picks and prints 3 rooms from rooms array and how many points each are

    print "Which room would you like?"
    GET choice

    update the user's character location
    add x points to the user's points

    print "You are now in the [room]. Make a hypothesis or conclusion." and then print the menu
    GET choice

    while choice is not "3. Guess":
      if choice == 1:
        print "You have already moved to a room"
      if choice == 2;
        print "Enter the character you want to check"
        print characters in the characters array
        GET character

        getCharacterStats(); // prints the Character's stats that you choose
      if choice == 4:
        print the elements in the user's evidence vector
      if choice == 5:
        printChecklist(); // prints the user's notes
        print "You can update your notes after you make a hypothesis"
      if choice == 6:
        break;

      print menu again

    when choice == 3:
    print "would you like to...
    1. make a hypothesis
    2. make a conclusion"
    GET choice

    if choice == 1:

```
        print "Choose a character to ask"
        GET character
        print "Enter the person you think did it"
        GET person
        print "Enter the weapon you think was used"
        GET weapon
        print "Enter the room you think it took place"
        GET room

        print "I think" << person << "did it" << "with a" << weapon << "in the" << room

        checkEvidence(); // goes into the character's vector to check if any of their evidence
matches
        if evidence matches:
            print character << "has the following evidence: " << evidence
        if evidence does NOT match:
            print character << "has no evidence."
    if choice == 2:
        print "Enter the person you think did it"
        GET person
        print "Enter the weapon you think was used"
        GET weapon
        print "Enter the room you think it took place"
        GET room

        checkConclusion(); // checks to see if conclusion is correct
        if wrong:
            print "You are not correct"
            add 15 points to the user's points
        if correct:
            print "You are correct! Congratulations, you win."
            break;

    if option == 2:
        prints rooms like this:
        1. room1
        2. room2
        3. room 3 ... etc

        print " Select a numerical option
        GET room

        update the user's character location
        add 5 points to the user's points
```

```
        print "You are now in the [room]. Make a hypothesis or conclusion." and then print the
menu
        GET choice

        while choice is not "3. Guess":
           if choice == 1:
              print "You have already moved to a room"
           if choice == 2;
              print "Enter the character you want to check"
              print characters in the characters array
              GET character

              getCharacterStats(); // prints the Character's stats that you choose
           if choice == 4:
              print the elements in the user's evidence vector
           if choice == 5:
              printChecklist(); // prints the user's notes
              print "You can update your notes after you make a hypothesis"
           if choice == 6:
              break;

           print menu again

        when choice == 3:
        print "would you like to...
        1. make a hypothesis
        2. make a conclusion"
        GET choice

        if choice == 1:
           print "Choose a character to ask"
           GET character
           print "Enter the person you think did it"
           GET person
           print "Enter the weapon you think was used"
           GET weapon
           print "Enter the room you think it took place"
           GET room

           print "I think" << person << "did it" << "with a" << weapon << "in the" << room

           checkEvidence(); // goes into the character's vector to check if any of their evidence
matches
```

```
            if evidence matches:
                print character << "has the following evidence: " << evidence
            if evidence does NOT match:
                print character << "has no evidence."
        if choice == 2:
            print "Enter the person you think did it"
            GET person
            print "Enter the weapon you think was used"
            GET weapon
            print "Enter the room you think it took place"
            GET room

            checkConclusion(); // checks to see if conclusion is correct
            if wrong:
                print "You are not correct"
                add 15 points to the user's points
            if correct:
                print "You are correct! Congratulations, you win."
                break;

    break;
case 2:
    print "Enter the character you want to check"
    print characters in the characters array
    GET character

    getCharacterStats(); // prints the Character's stats that you choose

case 3:
    print "would you like to...
        1. make a hypothesis
        2. make a conclusion
        select a numerical option"
    GET choice

    if choice == 1:
        print "Choose a character to ask"
        GET character
        print "Enter the person you think did it"
        GET person
        print "Enter the weapon you think was used"
        GET weapon
```

```
                print "I think" << person << "did it" << "with a" << weapon << "in the" << room the
user is in

                checkEvidence(); // goes into the character's vector to check if any of their evidence
matches
                if evidence matches:
                    print character << "has the following evidence: " << evidence
                if evidence does NOT match:
                    print character << "has no evidence."
            if choice == 2:
                print "Enter the person you think did it"
                GET person
                print "Enter the weapon you think was used"
                GET weapon
                print "Enter the room you think it took place"
                GET room

                checkConclusion(); // checks to see if conclusion is correct
                if wrong:
                    print "You are not correct"
                    add 15 points to the user's points
                if correct:
                    print "You are correct! Congratulations, you win."
                    break;

        break;
    case 4:
        print elements in the user's evidence vector
        print "would you like to show evidence
        1. yes
        2. no
        Select a numerical option"
        GET choice

        if choice == 1:
            print "Enter the evidence you'd like to share"
            GET evidence

            update the character's evidence vector
        if choice == 2:
            break;

        break;
    case 5:
```

```
        printChecklist(); // prints the user's notes

        print "would you like to update your notes?
        1. yes
        2. no
        Select a numerical option"
        GET choice

        if choice == 1:
            print "What would you like to edit?"
            GET element

            print "is" << element << "innocent or guilty?
            1. innocent
            2. guilty
            select a numerical option"
            GET choice

            if choice == 1:
                update innocence in the object
            if choice == 2:
                update innocence in the object
        if choice == 2:
            break;

        break;
    default:
        print "invalid input"
    }

    add one to the user's points
    add one to playerTurn
//////////////////////////////////////////////////////////////

  if playerTurn == 2:
      print "it is" << character[0] << "'s turn"

      add one to the character[0]'s points
      randomly choose between 0-5 points to add to their points (to represent changing rooms)

      randomly choose between 1-4
      if 1:
          randomly select index for each array (character, weapon, location)
```

```
print character[0] << "thinks" << character << "did it with a" << weapon << "in the" <<
room

print menu
GET choice

while choice is not "4. show evidence: "
    if choice == 1:
        print "it is not your turn to move"
    if choice == 2:
        print "Enter the character you want to check"
        print characters in the characters array
        GET character

        getCharacterStats(); // prints the Character's stats that you choose
    if choice == 3:
        print "it is not your turn to guess"
    if choice == 5:
        printChecklist(); // prints the user's notes
        print "You can update your notes when it's your turn"

    when choice == 4:
    print elements in the user's evidence vector
    print "would you like to show evidence
    1. yes
    2. no
    Select a numerical option"
    GET choice

    if choice == 1:
        print "Enter the evidence you'd like to share"
        GET evidence

        if evidence matches character[0]'s hypothesis:
            add one to character[0]'s power
    if choice == 2:
        break;

    add one to playerTurn;

//////////////////////////////////////////////////////////////
    if playerTurn == 3:
        print "it is" << character[1] << "'s turn"
```

```
add one to the character[1]'s points
randomly choose between 0-5 points to add to their points (to represent changing rooms)

randomly choose between 1-4
if 1:
    randomly select index for each array (character, weapon, location)
    print character[1] << "thinks" << character << "did it with a" << weapon << "in the" <<
room

    print menu
    GET choice

    while choice is not "4. show evidence: "
        if choice == 1:
            print "it is not your turn to move"
        if choice == 2:
            print "Enter the character you want to check"
            print characters in the characters array
            GET character

            getCharacterStats(); // prints the Character's stats that you choose
        if choice == 3:
            print "it is not your turn to guess"
        if choice == 5:
            printChecklist(); // prints the user's notes
            print "You can update your notes when it's your turn"

    when choice == 4:
    print elements in the user's evidence vector
    print "would you like to show evidence
    1. yes
    2. no
    Select a numerical option"
    GET choice

    if choice == 1:
        print "Enter the evidence you'd like to share"
        GET evidence

        if evidence matches character[1]'s hypothesis:
            add one to character[1]'s power
    if choice == 2:
        break;
```

```
        add one to playerTurn;

///////////////////////////////////////////////////////////////
    if playerTurn == 4:
        print "it is" << character[2] << "'s turn"

        add one to the character[2]'s points
        randomly choose between 0-5 points to add to their points (to represent changing rooms)

        randomly choose between 1-4
        if 1:
            randomly select index for each array (character, weapon, location)
            print character[2] << "thinks" << character << "did it with a" << weapon << "in the" <<
room

            print menu
            GET choice

            while choice is not "4. show evidence: "
                if choice == 1:
                    print "it is not your turn to move"
                if choice == 2:
                    print "Enter the character you want to check"
                    print characters in the characters array
                    GET character

                    getCharacterStats(); // prints the Character's stats that you choose
                if choice == 3:
                    print "it is not your turn to guess"
                if choice == 5:
                    printChecklist(); // prints the user's notes
                    print "You can update your notes when it's your turn"

            when choice == 4:
            print elements in the user's evidence vector
            print "would you like to show evidence
            1. yes
            2. no
            Select a numerical option"
            GET choice

            if choice == 1:
                print "Enter the evidence you'd like to share"
                GET evidence
```

```
            if evidence matches character[2]'s hypothesis:
                add one to character[2]'s power
        if choice == 2:
            break;

    add one to playerTurn;

/////////////////////////////////////////////////////////////////////
    if playerTurn == 5:
        playerTurn == 1


    if any of the character's power >= 8? && the user's points are > characters points:
        40% chance of losing right now

        if lose:
        find which character has the highest power number

        print "Uh oh!" << character << "solved the case. You lose!"
        print << "The answer was" << go through the "File" and print the elements


    if playerTurn != 1:
        print "it is not your turn, enter the numerical value:
        1. next"
        GET choice // this will set choice to 1 so the code can go through the loop again

    if playerTurn == 1:
        print "it's your turn, enter the numerical value:
        1. next"
        GET choice // this will set choice to 1 so the code can go through the loop again
}
```