**NATIONAL INSTITUTE OF TECHNOLOGY PUDUCHERRY**



**(An Institution of National Importance under MoE, Govt. of India)**

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**PYTHON MINI – PROJECT REPORT**

**TITLE: BLACKJACK GAME**

**Objective:**

The objective of a Blackjack mini project would typically be to create a functional program that allows users to play a game of Blackjack against the computer. The program would need to implement the rules of Blackjack, including dealing cards, calculating scores, and determining the winner of each round.

**Motivation:**

The Blackjack mini-project can be a great way to learn and practice programming skills while creating a fun and interactive game. It can also be used to build your programming portfolio at the same time doing something that is fun and interactive.

**Scope:**

The scope of a Blackjack mini project can vary depending on the complexity level and features you want to include. The scope of the Blackjack mini project can be customized to fit the skill level and interests of the programmer. It can be a simple, straightforward project or a more complex and feature-rich game.

**Problem Statement:**

The problem statement for a Blackjack mini project typically involves creating a functional program that simulates the game of Blackjack. Here are some potential elements that could be included in the problem statement:

1. Implement the rules of Blackjack, including dealing cards, calculating scores, and determining the winner of each round.
2. Allow the player to make decisions such as hitting and standing.
3. Program the dealer to follow traditional casino dealer strategies, such as hitting until they reach a certain score or standing when they have a certain hand.

**Product Features:**

* **Card deck and dealing logic:** A deck of 52 playing cards should be implemented in the game, and the program should have a way of shuffling and dealing the cards. There should also be a way of tracking which cards have been played and which are still in the deck.
* **Score calculation:** The program should be able to calculate the score of each player's hand, and determine the winner of each round based on the score. The program should also be able to identify when the player or dealer has gone over 21, and declare the winner accordingly.
* **Basic dealer AI:** The dealer should follow traditional casino dealer strategies, such as hitting until they reach a certain score or standing when they have a certain hand

**Requirements:**

* Card deck and dealing logic
* Player decisions
* Betting system

**Concepts Used:**

1. Logic
2. Classes and OOPS
3. Error Handling
4. File Handling
5. Usage of Utilities

**Implementation:**

The implementation phase includes taking the player’s name and the amount being bet in each round. The maximum bet one can bet is 100. If the amount crosses 100, then appropriate error handling is done to avoid such difficulties. The record of each round is saved in a pickle file. After each round, it will announce whether the player has beaten the dealer or the dealer busted the player or not.

**Test Cases:**

* Chips bet: It verifies whether the chips bet exceeds 100 or not
* Hit or Stand: It verifies whether the player chooses to hit or stand in a particular round.
* Outcome of the winner: It verifies whether the player has won or the dealer has won the round
* Game Continuation: It verifies whether the player wants to continue or not.

**Project Outcomes:**

* Creates an entertaining environment
* Improved programming skills
* Personal satisfaction
* Portfolio addition
* Improved game skills

**Future Scope:**

* Multiplayer mode: The game could be expanded to include a multiplayer mode, where players can compete against each other online.
* Advanced AI: The dealer's AI could be improved to incorporate more advanced strategies, such as card counting, to make the game more challenging.
* Adding different variations of Blackjack: The program could include different variations of the game such as Atlantic City Blackjack, Double Exposure Blackjack, and more

**Conclusion:**

In conclusion, the Blackjack game is a very entertaining piece of code, and even though this is a very basic prototype of the big game played across the world, it is a learning experience and a fun experience dealing with such projects.