Report on

# Number Games

by

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# Content



# Introduction

In Number Games the user starts with 5000 coins, which he can spend on games and get rewards after winning them. There are 3 games in Number Games, namely:

1. Highlow
2. Guess
3. Gamble

1. Highlow

   In highlow the computer chooses a random number between 1-100, which is hidden from the user. The user is then given a random hint. The user then has to deduce if the hidden number is higher, lower, or equal to hint. If you guess correctly, you win double the coins you put in to play the game.

2. Guess

   In guess, the computer selects a random number between 1-20 and the user has to guess the number using only 4 guesses and 2 hints. The hints state if your last guess is higher or lower than the answer. If you guess correctly, you win double the coins you put in to play the game.

3. Gamble

   In gamble, the user and the computer both roll two dice. If your total of the two rolled dices is more than the total of computer's rolled dices then you win double the coins you put in to play the game. This game is purely luck based.

# Problem Statement

Write a program on number-based games with its own currency and reward system.

# Flow of the Project

There are 7 classes and 1 interface in this project.

Classes:

1. Main
2. Pages
3. Accounts
4. Methods
5. Highlow
6. Guess
7. Gamble

Interface:

1. Games.

We will discuss the flow of project according to the classes, starting off with:

## 1. Pages

In this project we decided to display the project in form of pages. This class is therefore divided into three methods.

1. mainpage()
2. playpage()
3. instructionpage()

In mainpage() we display the title and options to play and to read instructions or to exit the program. The choice is controlled by user input in form of numbers.

If the user selects to go to play then he is sent to playpage() after clearing the screen. In playpage() the user has the choice to play any of the 3 games or to go back to main menu. Again, the choice is controlled by user input in form of numbers.

If the user instead opts to go to Instructions then after clearing the screen the instructionpage() method is run. In this the user has the choice to read the instructions of any of the 3 games or go back to menu. The choice is again controlled by user input in form of numbers.

2. Methods

   Methods only stores one method i.e. clearScreen(). What clear screen does is clears the console so that we can display the next page or game on screen. Pages inherits Methods, so Methods is the superclass of Pages.

3. Accounts

   In accounts we store the usercoins in form of int and name of user in form of String. Whenever the user wagers money the usercoins are subtracted and when user wins money the rewards are added via the methods of sub(), add(). Also, getters for usercoins and name are there and setters for name.

4. Interface Games

   Interface Games is the blueprint of all the 3 games, it consists of only two methods i.e., play() and instructions(). We will see how we use these next in the game classes.

5. Highlow, Guess, Gamble

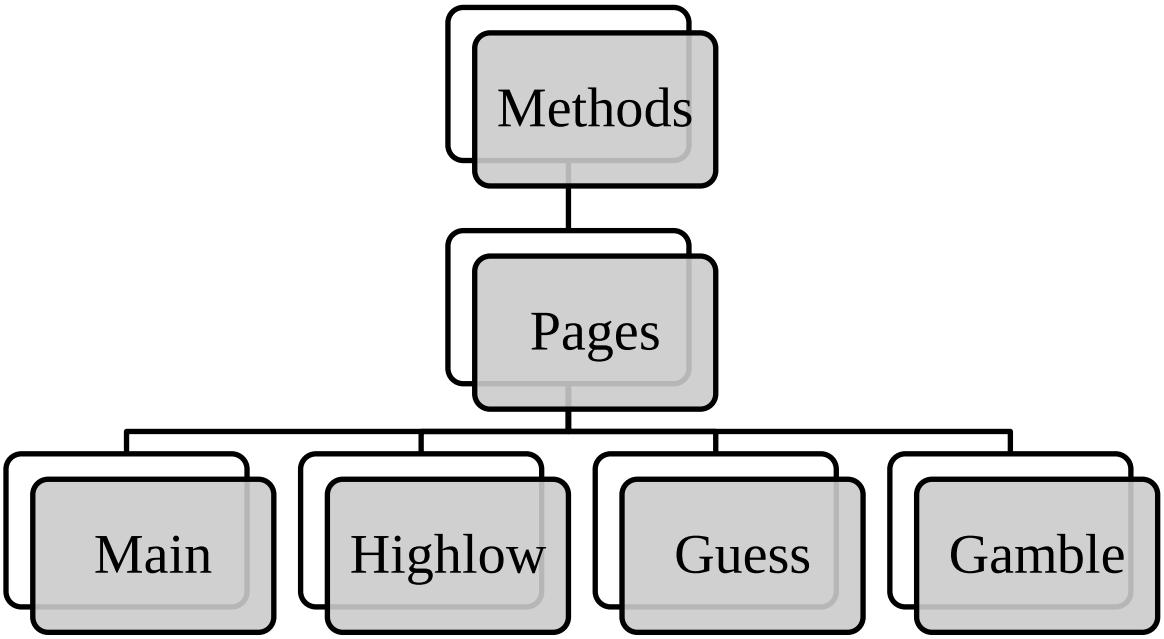
   Highlow, Guess, and Gamble all extend Pages and implement Games and all have same two methods i.e., play() and instructions(). In play(), we first write the game code and the addition and subtraction of coins wherever necessary, after the game code we put choices to play again or to go to playpage() again to select which game to play.
   In instructions(), we display the instructions when asked in instruction page and after reading the user returns to instructionpage() after user input.

6. Main

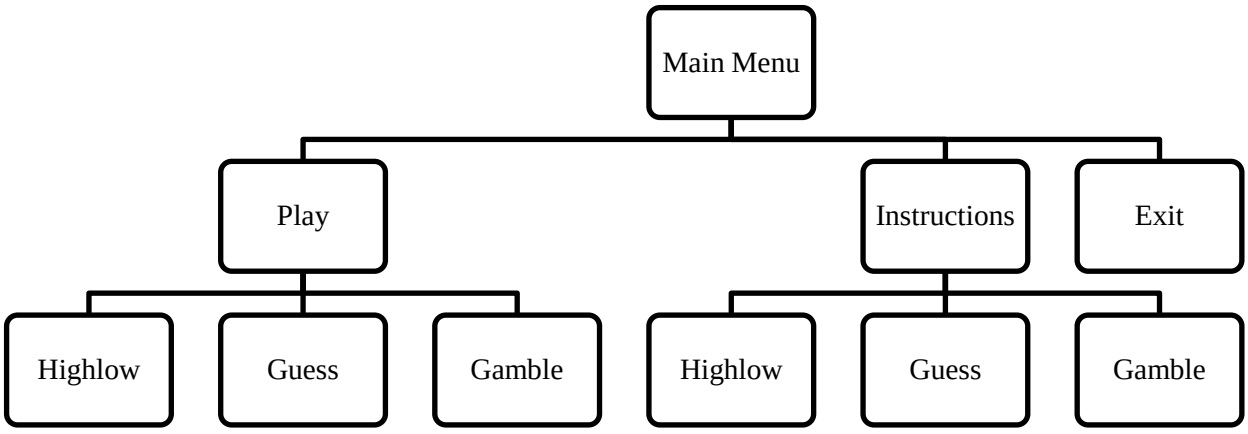
   Main extends Pages. In Main, we create objects for Highlow, Guess, Gamble, Accounts and run mainpage().

Our page system is all interconnected so only running mainpage() ensures all the game code will be run and the only way to exit is by exiting via mainpage().

Inheritance Hierarchy:




Page Hierarchy:



# IDE – Eclipse for Java Developers

Eclipse is an integrated development environment (IDE) used in computer programming. It contains a base workspace and an extensible plug-in system for customizing the environment. Eclipse is written mostly in Java and its primary use is for developing Java applications.

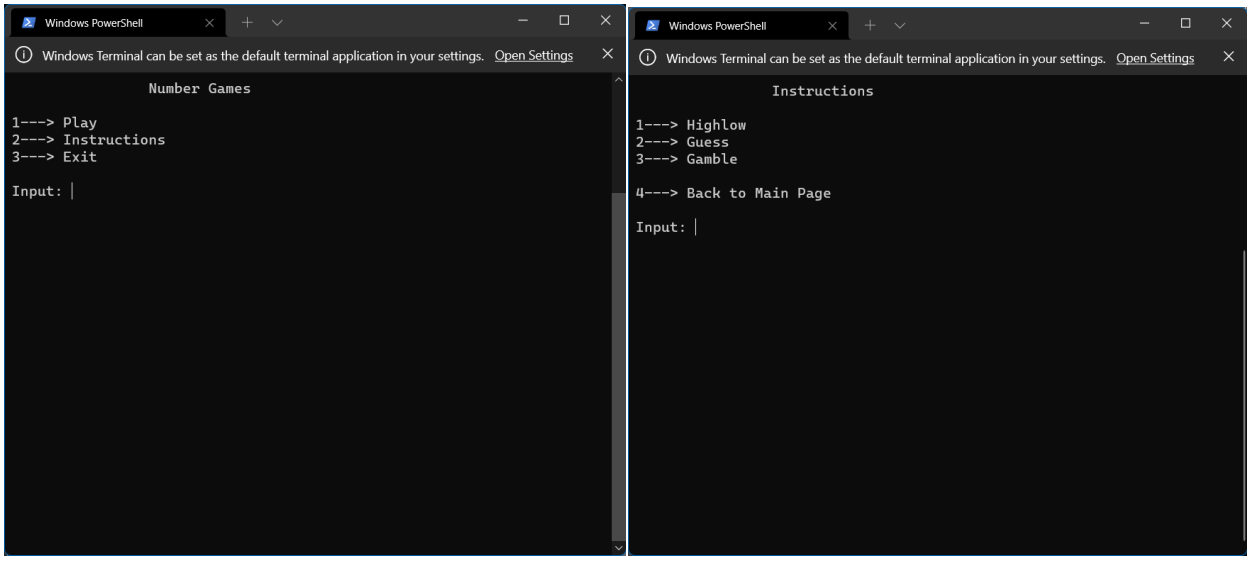
## Benefits:

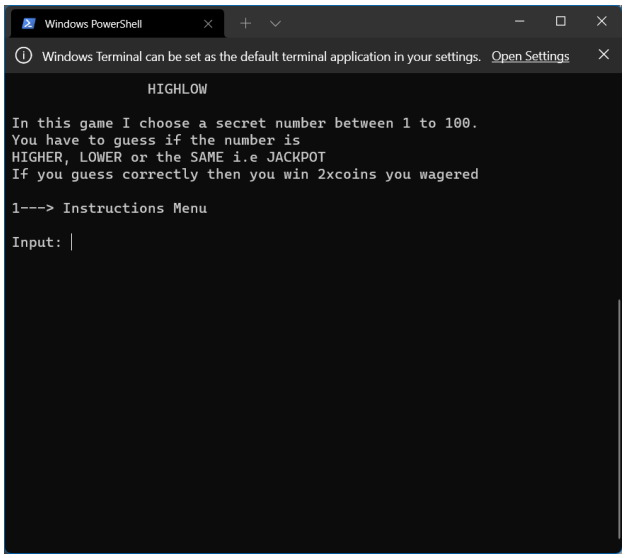
1. A simple UI to make it easy to get into.
2. A lot of auto-complete shortcuts to code faster and save time.
3. A plethora of user-made extensions and solutions for the user to download them and make use of.
4. Even though it is famous for Java programming, it can also be used for a lot of other languages.

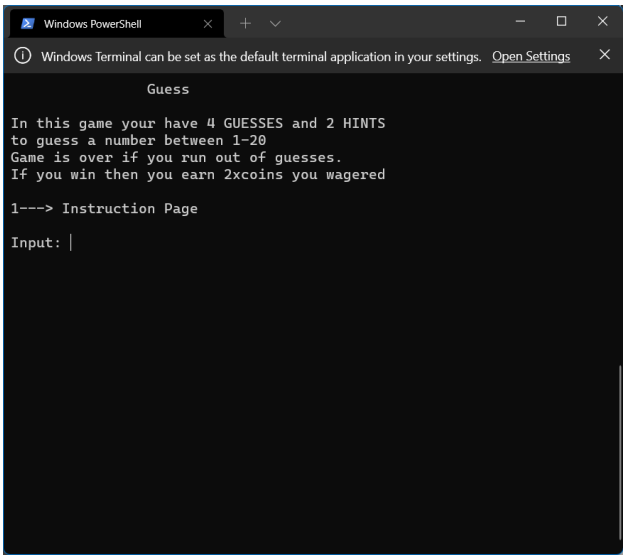
## Shortcomings:

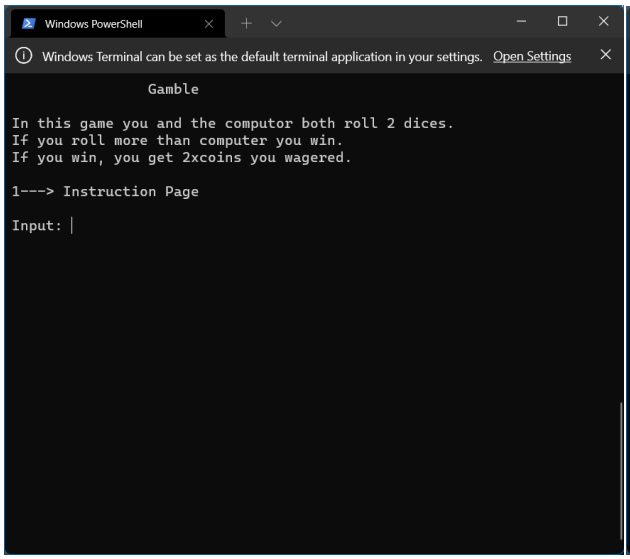
1. It uses a lot of memory and can hang or even crash while loading bigger projects.
2. Since the software UI is old, it can look a bit lacklustre compared to modern IDEs like Visual Studio code.

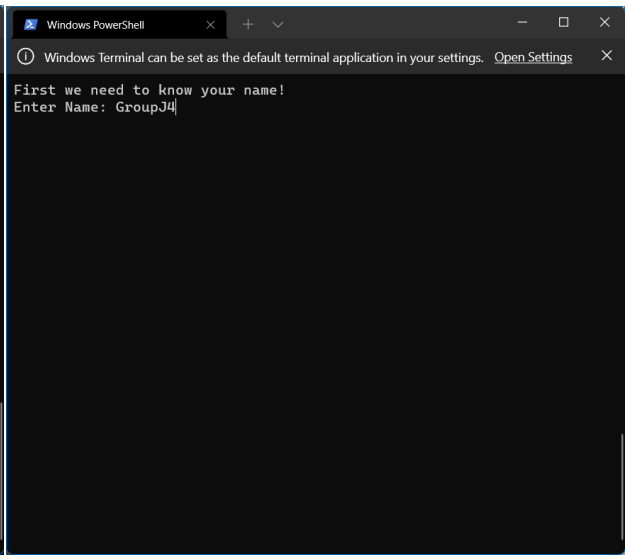
## Screenshot of Output

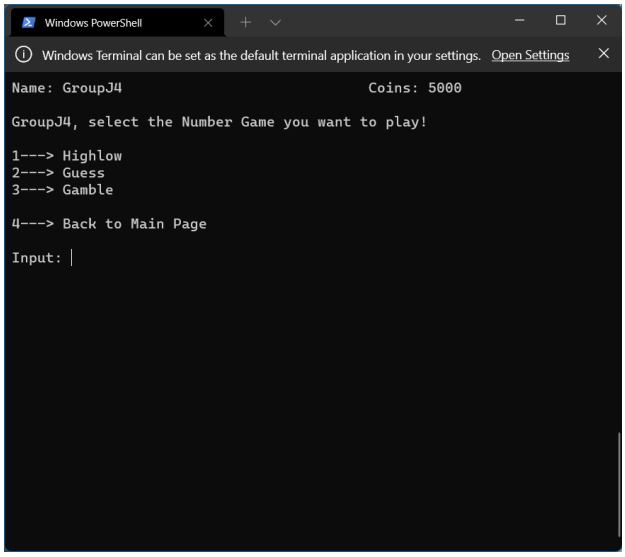


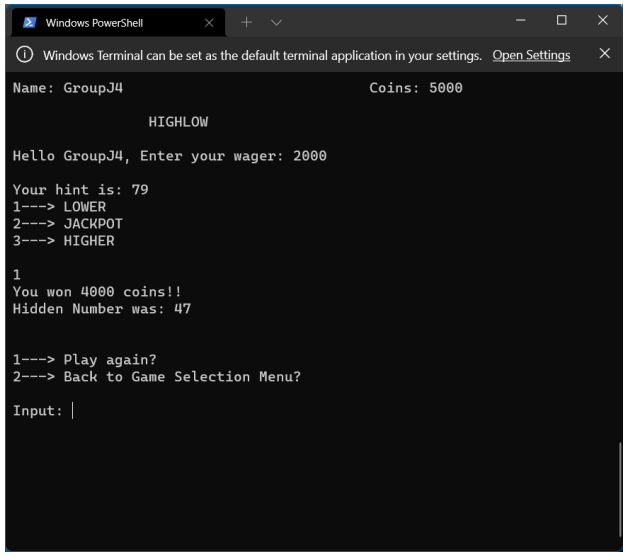

Windows PowerShell
Windows Terminal can be set as the default terminal application in your settings. Open Settings
HIGHLOW
In this game I choose a secret number between 1 to 100.
You have to guess if the number is
HIGHER, LOWER or the SAME i.e JACKPOT
If you guess correctly then you win 2xcoins you wagered
1---> Instructions Menu
Input:

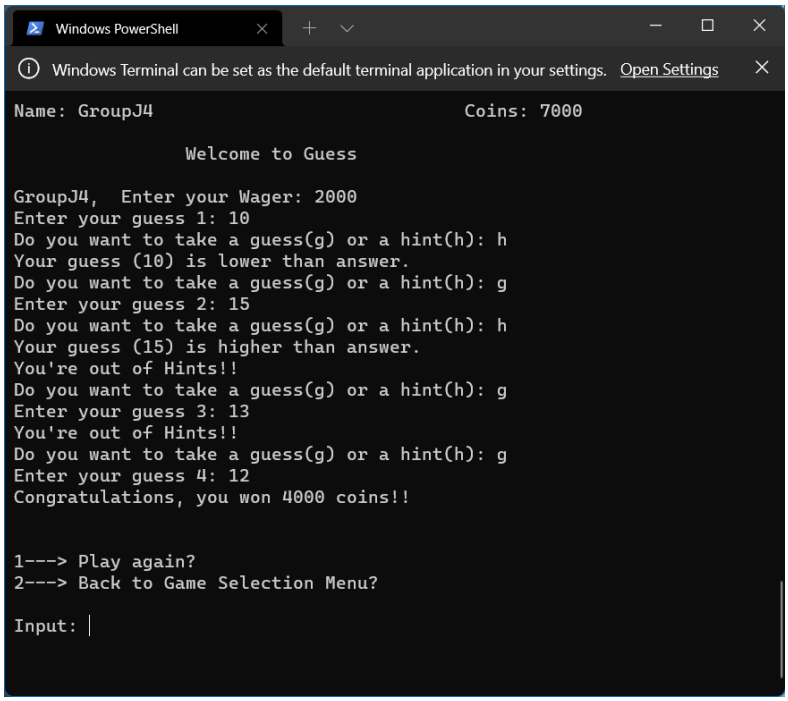

Windows PowerShell
Windows Terminal can be set as the default terminal application in your settings. Open Settings
Guess
In this game your have 4 GUESSES and 2 HINTS
to guess a number between 1-20
Game is over if you run out of guesses.
If you win then you earn 2xcoins you wagered
1---> Instruction Page
Input:

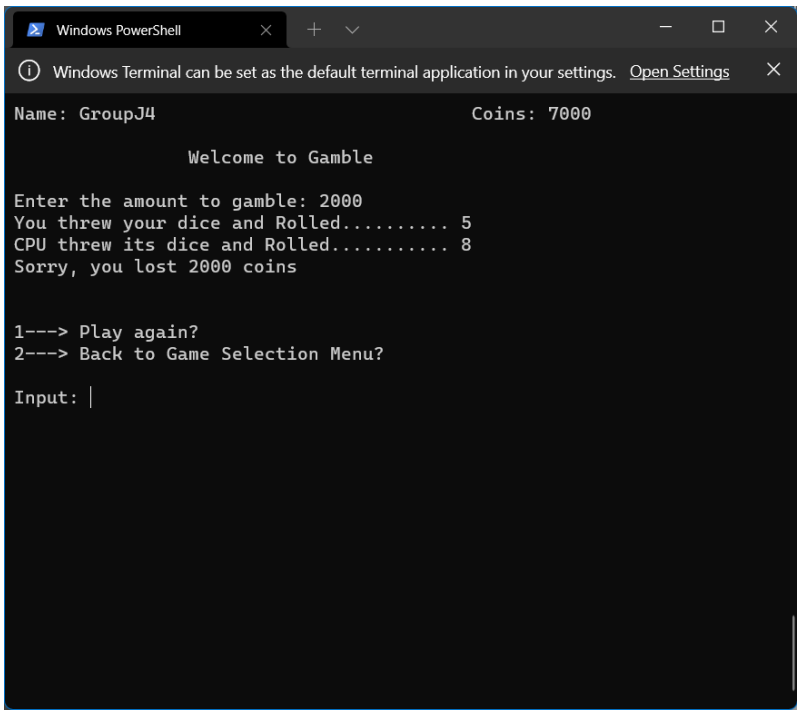

Windows PowerShell
Windows Terminal can be set as the default terminal application in your settings. Open Settings
Gamble
In this game you and the computor both roll 2 dices.
If you roll more than computer you win.
If you win, you get 2xcoins you wagered.
1---> Instruction Page
Input:

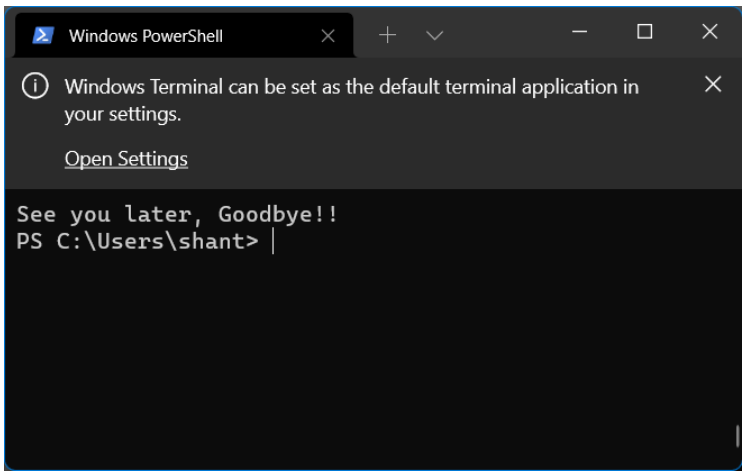

Windows PowerShell
Windows Terminal can be set as the default terminal application in your settings. Open Settings
First we need to know your name!
Enter Name: GroupJ4


Windows PowerShell
Windows Terminal can be set as the default terminal application in your settings. Open Settings
Name: GroupJ4 Coins: 5000
GroupJ4, select the Number Game you want to play!
1---> Highlow
2---> Guess
3---> Gamble
4---> Back to Main Page
Input:


Windows PowerShell
Windows Terminal can be set as the default terminal application in your settings. Open Settings
Name: GroupJ4 Coins: 5000
HIGHLOW
Hello GroupJ4, Enter your wager: 2000
Your hint is: 79
1---> LOWER
2---> JACKPOT
3---> HIGHER
1
You won 4000 coins!!
Hidden Number was: 47
1---> Play again?
2---> Back to Game Selection Menu?
Input:


Windows PowerShell
Windows Terminal can be set as the default terminal application in your settings. Open Settings
Name: GroupJ4 Coins: 7000
Welcome to Guess
GroupJ4, Enter your Wager: 2000
Enter your guess 1: 10
Do you want to take a guess(g) or a hint(h): h
Your guess (10) is lower than answer.
Do you want to take a guess(g) or a hint(h): g
Enter your guess 2: 15
Do you want to take a guess(g) or a hint(h): h
Your guess (15) is higher than answer.
You're out of Hints!!
Do you want to take a guess(g) or a hint(h): g
Enter your guess 3: 13
You're out of Hints!!
Do you want to take a guess(g) or a hint(h): g
Enter your guess 4: 12
Congratulations, you won 4000 coins!!
1---> Play again?
2---> Back to Game Selection Menu?
Input:


Windows PowerShell
Windows Terminal can be set as the default terminal application in your settings. Open Settings
Name: GroupJ4 Coins: 7000
Welcome to Gamble
Enter the amount to gamble: 2000
You threw your dice and Rolled..... 5
CPU threw its dice and Rolled..... 8
Sorry, you lost 2000 coins
1---> Play again?
2---> Back to Game Selection Menu?
Input:


Windows PowerShell
Windows Terminal can be set as the default terminal application in your settings.
Open Settings
See you later, Goodbye!!
PS C:\Users\shant>

## References


1. Clear the Console in Java | Delft Stack
2. Eclipse (software) - Wikipedia