**HANGMAN GAME USING JAVA**

**A CAPSTONE PROJECT REPORT**

# **(Programming in Java For Web Application-CSA0910)**

***Submitted to***

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**BONAFIDE CERTIFICATE**

**Certified that this project report “HANGMAN GAME ” is the Bonafide work of “J.GAYATHIRI, M.TARIQ,G.PREETHA” who carried out the project work under my supervision.**

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**AIM:**.The aim of the Hangman game is to provide an entertaining yet educational experience that challenges players' vocabulary and deductive reasoning skills. Through the process of guessing letters to unveil a hidden word or phrase within a limited number of attempts, players engage in interactive learning and critical thinking. The game promotes social interaction, encouraging communication and collaboration among participants. Its adaptability allows for customization based on skill levels and preferences, fostering creativity and strategic thinking. Hangman combines elements of fun and learning, making it a timeless and enjoyable game that offers both entertainment value and cognitive benefits.

**PROBLEM STATEMENT:**Here are some additional points related to the problem statement for a Hangman game project:

1. **Technological Adaptation**: With the advent of technology and digital entertainment, traditional games like Hangman face the challenge of adapting to modern platforms, devices, and user preferences. The project aims to leverage technology to create a seamless and engaging Hangman game experience that resonates with today's tech-savvy audience.
2. **User Engagement:** One of the key challenges is to enhance user engagement and retention by incorporating elements such as dynamic themes, customizable difficulty levels, interactive animations, and social features. These enhancements are crucial for attracting and retaining players in a competitive gaming landscape.
3. **Educational Value:** While the game is primarily designed for entertainment, it also serves an educational purpose by promoting vocabulary expansion and logical thinking. The project seeks to strike a balance between entertainment and education, making the Hangman game both enjoyable and intellectually stimulating.
4. **Accessibility and Inclusivity:** Another important aspect is ensuring accessibility and inclusivity for players of all ages and abilities. This involves optimizing user interfaces, providing clear instructions and hints, and accommodating different learning styles to make the game accessible and enjoyable for a diverse audience.
5. **Market Positioning:** In a crowded market of gaming apps, the project aims to differentiate the Hangman game by offering unique features, innovative gameplay mechanics, and compelling content. Effective market positioning strategies will be employed to attract attention, generate interest, and foster a loyal user base.
6. **Feedback and Iteration:** Continuous feedback gathering and iterative development are essential components of the project's approach. Incorporating user feedback, analytics data, and performance metrics will drive ongoing improvements, updates, and optimizations to enhance the overall gaming experience and ensure long-term success.

By addressing these challenges and focusing on user-centric design, educational value, technological innovation, market positioning, and continuous improvement, the project aims to create a standout Hangman game that captivates players and stands the test of time in the digital gaming landscape.

**EXPLANATION:**The Hangman game, a classic word-guessing pastime, faces the challenge of remaining relevant and engaging in today's digital age. As technology evolves and gaming preferences shift, traditional games like Hangman need to adapt to modern platforms, user expectations, and educational demands. This project aims to revitalize the Hangman experience by leveraging technology, enhancing user engagement, maintaining educational value, ensuring accessibility, strategically positioning the game in the market, and embracing iterative development based on user feedback. By addressing these key areas, the project seeks to create a compelling and inclusive Hangman game that captivates players of all ages while offering enriching educational benefits.

1. **Technological Adaptation:**
   * In the context of modern technology and digital platforms, traditional games like Hangman need to be adapted to appeal to today's audiences.
   * This involves developing the game for various devices such as smartphones, tablets, and computers, ensuring compatibility and optimized user experience across different platforms.
   * Utilizing modern programming languages, frameworks, and tools is crucial to create a seamless and engaging gameplay environment.
2. **User Engagement:**
   * Enhancing user engagement is a critical aspect of the project. This includes incorporating dynamic themes that resonate with users, offering customizable difficulty levels to cater to different skill levels, and integrating interactive elements like animations and sound effects.
   * Social features such as multiplayer modes, leaderboards, and challenges can further enhance user engagement by fostering competition and collaboration among players.
3. **Educational Value:**
   * While Hangman is a game, it also has educational benefits, particularly in promoting vocabulary expansion and logical reasoning.
   * The project aims to maintain and enhance the educational value of the game by providing word categories, definitions, and hints that encourage players to learn new words and improve their language skills while playing.
4. **Accessibility and Inclusivity:**
   * Accessibility is key to ensuring that the game can be enjoyed by players of all ages and abilities.
   * User interfaces will be designed to be intuitive and easy to navigate, with clear instructions and visual cues to guide players.
   * Customization options, such as adjusting difficulty levels or providing accessibility features for players with disabilities, will be considered to make the game inclusive and accessible to a wide audience.
5. **Market Positioning:**
   * In a competitive market, effective market positioning strategies will be employed to differentiate the Hangman game from other similar offerings.
   * This may involve highlighting unique features, offering special promotions or incentives, and leveraging marketing channels to reach the target audience effectively.
6. **Feedback and Iteration:**
   * Continuous feedback gathering from players, analytics data, and performance metrics will drive iterative development and improvement of the game.
   * Regular updates, bug fixes, and feature enhancements based on user feedback will ensure that the game evolves over time, staying relevant and engaging for players.

By addressing these aspects comprehensively, the project aims to create a modern, engaging, and educational Hangman game that resonates with users and stands out in the competitive gaming market.

**CODE:**

import javax.swing.\*;

import java.awt.\*;

import java.awt.event.ActionEvent;

import java.awt.event.ActionListener;

import java.util.HashSet;

import java.util.Random;

import java.util.Set;

public class HangmanGame extends JFrame {

private String[] words = {"hello",”java”,”sam immanuel”,”balaji”};

private String secretWord;

private Set<Character> guesses;

private int remainingAttempts = 6;

private JLabel wordLabel;

private JTextField guessEntry;

private JLabel messageLabel;

private JLabel hangmanDisplay;

public HangmanGame() {

setTitle("Hangman Game");

setSize(800, 600);

setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

getContentPane().setBackground(Color.LIGHT\_GRAY);

setLayout(null);

guesses = new HashSet<>();

secretWord = words[new Random().nextInt(words.length)];

wordLabel = new JLabel("\_ ".repeat(secretWord.length()));

wordLabel.setFont(new Font("Arial", Font.PLAIN, 20));

wordLabel.setBounds(300, 100, 400, 40);

add(wordLabel);

guessEntry = new JTextField(1);

guessEntry.setFont(new Font("Arial", Font.PLAIN, 16));

guessEntry.setBounds(350, 160, 100, 30);

add(guessEntry);

JButton guessButton = new JButton("Guess");

guessButton.setBounds(350, 210, 100, 30);

add(guessButton);

messageLabel = new JLabel("");

messageLabel.setFont(new Font("Arial", Font.PLAIN, 16));

messageLabel.setBounds(300, 260, 400, 40);

add(messageLabel);

hangmanDisplay = new JLabel();

hangmanDisplay.setFont(new Font("Arial", Font.PLAIN, 20));

hangmanDisplay.setBounds(350, 320, 400, 200);

add(hangmanDisplay);

updateHangmanDisplay();

guessButton.addActionListener(new ActionListener() {

@Override

public void actionPerformed(ActionEvent e) {

makeGuess();

}

});

}

private void makeGuess() {

String guessText = guessEntry.getText().toLowerCase();

guessEntry.setText("");

if (guessText.length() != 1 || !Character.isLetter(guessText.charAt(0))) {

messageLabel.setText("Please enter a single letter.");

return;

}

char guess = guessText.charAt(0);

if (guesses.contains(guess)) {

messageLabel.setText("You already guessed that letter.");

return;

}

guesses.add(guess);

if (secretWord.indexOf(guess) >= 0) {

updateWordDisplay();

if (!wordLabel.getText().contains("\_")) {

messageLabel.setText("Congratulations! You won!");

guessEntry.setEditable(false);

}

} else {

remainingAttempts--;

updateHangmanDisplay();

if (remainingAttempts == 0) {

messageLabel.setText("Game over! The word was '" + secretWord + "'.");

guessEntry.setEditable(false);

}

}

}

private void updateWordDisplay() {

StringBuilder display = new StringBuilder();

for (char letter : secretWord.toCharArray()) {

display.append(guesses.contains(letter) ? letter + " " : "\_ ");

}

wordLabel.setText(display.toString());

}

private void updateHangmanDisplay() {

String[] hangmanParts = {

" \_\_\_\_\_\_\_\_",

" | |",

" | O",

" | /|\\",

" | / \\",

" |",

" |"

};

StringBuilder display = new StringBuilder();

for (int i = 0; i < hangmanParts.length - remainingAttempts; i++) {

display.append(hangmanParts[i]).append("\n");

}

hangmanDisplay.setText("<html>" + display.toString().replace("\n", "<br>") + "</html>");

}

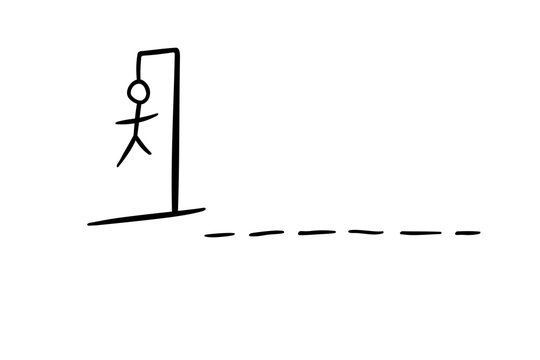
public static void main(String[] args) {

HangmanGame hangmanGame = new HangmanGame();

hangmanGame.setVisible(true);

}

}



**CONCLUSION:**In conclusion, developing a Hangman game involves considerations of user engagement, educational value, technological adaptation, market positioning, and continuous improvement based on user feedback. The project aims to create an interactive and engaging game experience that resonates with modern audiences while retaining the educational benefits of word-guessing and deductive reasoning. By leveraging technology, implementing user-friendly interfaces, and incorporating dynamic gameplay elements, the Hangman game can be revitalized to cater to a wide range of players.