A
Major Project Report on

Educational Word Explorer in Indian Language

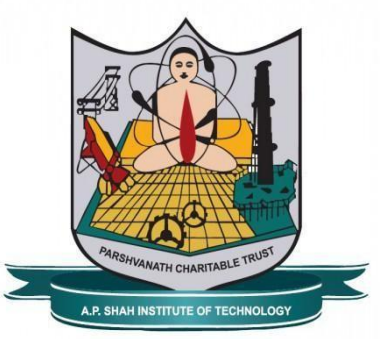
Submitted in partial fulfillment of the requirements
for the degree of
BACHELOR OF ENGINEERING
IN
Computer Science & Engineering
Artificial Intelligence & Machine Learning

by

Athang Jadhav (23106039)
Kaustubh Bhoir (23106066)
Varun Bura (23106129)
Vignesh Gundari (23106008)

Under the guidance of

Prof. Taruna Sharma



Department of Computer Science & Engineering
(Artificial Intelligence & Machine Learning)
A. P. Shah Institute of Technology
G. B. Road, Kasarvadavali, Thane (W)-400615
University Of Mumbai
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CERTIFICATE

This is to certify that the project entitled "**Educational Word Explorer in Indian Language"** is a bonafide work of Athang Jadhav (23106039), Kaustubh Bhoir (23106066), Varun Bura (23106129), Vignesh Gundarai (23106008) submitted to the University of Mumbai in partial fulfillment of the requirement for the award of **Bachelor of Engineering** in **Computer Science & Engineering (Artificial Intelligence & Machine Learning).**

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Prof. Taruna Sharma	Dr. Jaya Gupta
Mini Project Guide	Head of Department

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Project Report Approval

This Mini project report entitled "**Educational Word Explorer in Indian Language"** by **Athang Jadhav, Kaustubh Bhoir, Varun Bura and Vignesh Gundari** is approved for the degree of ***Bachelor of Engineering*** in ***Computer Science &Engineering***, (AIML) ***2022-23***.

External Examiner: _____

Internal Examiner: _____

Place: APSIT, Thane

Date:

Declaration

We declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission hasnot been taken when needed.

Athang Jadhav	Kaustubh Bhoir	Varun Bura	Vignesh Gundari
(23106039)	(23106066)	(23106129)	(23106008)

ABSTRACT

It can be seen that emerging technology has positively affected learning in several aspects. Recently gamification has been implemented noticcably in online learning and teaching. Gamification has shown its effectiveness in students' integration of the education process by increasing students' integration with the teaching material and increasing their competence. Leaming and teaching a new language is a complicated and strenuous process, so leamers usually need to be motivated. Gamification can play a role in further encouraging learners. This study conducted the systematic literature review methodology to demonstrate gamification in teaching and learning new languages over the three databases Web of Science, Science Direct, and Scopus. The study includes 103 studies that have been published between 2010-2020. The study finding reveals that gamification can be a useful tool for teaching and learning languages and can increase learners' motivation and turn learning into an enjoyable process. It is recommended that further research be conducted in language education, focusing on gamification in learning the four primary language skills.

Keywords: Gamification, language learning, language teaching, educational application, mobile applications

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CHAPTER 1

INTRODUCTION

1. INTRODUCTION

In a country as diverse as India, language plays a crucial role in education and communication. Hindi, being one of the most widely spoken languages in the country, holds significant importance in the academic curriculum and daily conversations. However, despite its prominence, there is often a lack of engaging and innovative methods for learning Hindi, especially for younger generations who are more inclined towards digital learning.

The rapid growth of technology and digital education has created opportunities to integrate gamification into language learning. Games have proven to be powerful tools for education, fostering engagement, motivation, and retention. The **Educational Word Explorer Game in Indian Language** is designed to bridge the gap between traditional language education and modern digital learning techniques. By combining interactive gameplay, multimedia elements, and structured language lessons, the game serves as an effective tool for developing linguistic skills while keeping learners entertained.

Moreover, the game aims to create an immersive experience where players can explore Hindi vocabulary in a contextual and meaningful manner. It provides challenges and activities that go beyond rote memorization, encouraging players to apply their knowledge through puzzles, word formations, quizzes, and storytelling. Additionally, it caters to a wide audience, from young students to adult learners, helping them build vocabulary, improve spelling, and develop a deeper understanding of Hindi grammar.

By integrating Hindi language learning into an interactive and engaging format, the **Educational Word Explorer Game** not only enhances literacy but also fosters a sense of pride and appreciation for India's linguistic heritage. As digital learning becomes increasingly prevalent, such initiatives can contribute to the widespread adoption of Hindi, ensuring its relevance and sustainability in a rapidly evolving world.

CHAPTER 2

LITERATURE SURVEY

2. LITERATURE SURVEY

2.1-HISTORY

In our comprehensive literature survey for the **Shabda Chakra** project, we analyzed six pertinent research papers to understand their methodologies, limitations, and how our project addresses these gaps to offer a more efficient learning experience:

Here are the research papers with simplified abstracts (readability level 2) and their key features:

1. Engaging Students in the Learning Process with Game-Based Learning: The Fundamental Concepts

Release Date: 2021

Introduction

Educational games have become a successful tool for teaching English as a second language, enhancing student engagement and learning outcomes. This study explores their integration into university education to support lifelong and interdisciplinary learning.

Key Features of Game-Based Learning

- Enhances Engagement: Interactive elements make learning more engaging.
- Develops Social & Cognitive Skills: Encourages collaboration and problem-solving.
- Supports Mindset Growth: Promotes critical thinking and adaptability.

2. Game On: Exploring the Effectiveness of Game-Based Learning

Release Date: 2020

Introduction

Game-based learning is an innovative technique that enhances student motivation, emotional involvement, and enjoyment. This study examines its effectiveness in planning education, focusing on its impact on learning perception, engagement, and teamwork.

Key Findings

- Higher Engagement: Students preferred the game-based lecture over the traditional method.
- Improved Learning Perception: Gamification made learning more interactive and enjoyable.
- Effective for Planning Education: The study highlights its suitability for planning courses.

3. The Impact of Game-Based Teaching Practices on Different Curricula

Release Date: 2021

Introduction

This study examines the impact of game-based teaching methods on academic achievement by analyzing multiple studies conducted between 2000 and 2020.

Methodology

- Meta-Analysis Approach: 412 studies were reviewed, and 54 experimental studies were analyzed using the Comprehensive Meta-Analysis Program (CMA) and MetaWin.
- Comparison: Game-based teaching was compared with traditional teaching methods.

Key Findings

- Positive Impact: Game-based teaching improves academic achievement more than traditional methods.
- Effect Variations: Results varied based on education level, treatment duration, sample size, and publication type.

4. Effects of Game-Based Learning on Attitude and Achievement in Elementary Mathematics

Release Date: 2019

Introduction

Game-based learning provides realistic and interactive experiences in education. This study explores its effectiveness in teaching ordered pairs to fifth-grade math students.

Methodology

- Data Collection: Surveys, content tests, student interviews, and field notes.
- Additional Analysis: Classroom photographs, videos, and student work samples.

Key Findings

- Improved Attitudes: Students became more positive about math and the lessons.
- Higher Achievement: All students showed academic improvement.
- Key Themes:
    - Growth Mindset: Encouraged a strong work ethic.
    - Problem-Solving Skills: Partner work enhanced critical thinking.
    - Engagement: Games made learning more enjoyable.

5. Foundations of Game-Based Learning

Release Date: 2015

Introduction

This study emphasizes the need for multiple perspectives when studying or applying games as learning environments.

Key Concepts

- Game-Based Learning & Gamification: Defined and differentiated.
- Theoretical Models: Examined to show how games contribute to learning.
- Playfulness & Learning Theory: Discussed as independent but complementary aspects.

Game Design Elements for Learning

Games enhance learning by fostering cognitive, behavioral, affective, and sociocultural engagement.

Theoretical Foundations

Key principles from education and psychology provide insights into:

- Cognitive & Motivational Aspects
- Affective & Sociocultural Influences

6. Effectiveness of Digital Game-Based Learning Strategy in Higher

Educational Perspectives

Release Date: 2023

Introduction

Digital game-based learning (DGBL) is widely applied in education, marketing, and advertising, gaining attention for its effectiveness in enhancing 21st-century learning skills.

Objectives of the Study

- Review Literature: Analyze previous studies on DGBL in higher education.
- Explore Adult Learning Theories: Examine their role in DGBL strategies.
- Identify Challenges & Solutions: Address barriers in implementing DGBL.

Methodology

- Selection Criteria: 20 studies published between 2008-2021 were reviewed.

Key Findings

- Enhances Learning Skills: DGBL positively impacts learning in higher education.
- Boosts Engagement & Critical Thinking: Encourages active participation and cognitive development.

CHAPTER 3

Problem Statement

3. Problem Statement

Word Hunt is an exciting and interactive word-guessing game designed to make learning fun and engaging. It offers two gameplay modes: Quiz Mode, where players answer clues to guess the correct word, and Guessing Alphabets Mode, where they fill in blank spaces by identifying the right letters. Combining education with entertainment, Word Hunt is perfect for enhancing vocabulary, spelling, and cognitive skills while providing a fun challenge for players of all ages.

The current language learning tools primarily focus on English, leaving Hindi speakers with limited options for building vocabulary in an engaging way. Traditional methods like rote memorization are often ineffective and monotonous, leading to poor retention. There is a growing need for digital tools that incorporate gamification to make learning enjoyable and interactive. The "Word Hunt" game addresses this gap by offering a Hindi-language word puzzle experience, combining quiz-based learning with competitive, time-based mechanics to enhance vocabulary retention and make the learning process more engaging for Hindi speakers.

CHAPTER 4

Experimental Setup

4. Experimental Setup

4.1 Hardware Setup

To play the web-based Hindi vocabulary game, users need the following hardware:

- Device: Desktop, Laptop
- Processor: Any modern processor (Intel, AMD)
- RAM: Minimum 2GB (4GB or more recommended for smooth performance)
- Storage: No specific requirement (as the game runs in a web browser)
- Display: 1366x768 resolution or higher for better visibility
- Keyboard:
    - For Quiz Game: Standard QWERTY keyboard or touchscreen input
    - For Letter Guessing Game: Hindi Phonetic Keyboard (users must enable this on their system)
- Internet Connection: Required for accessing the game online

4.2 Software Setup

Users must have the following software to play the game:

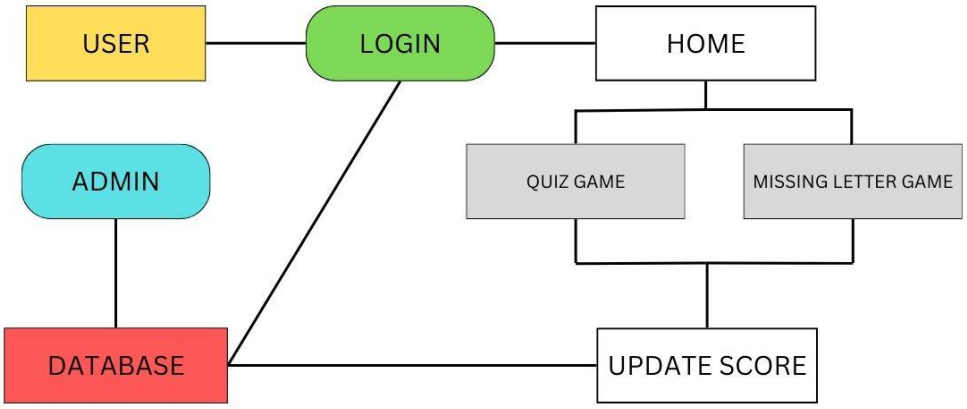
- Operating System: Windows, macOS, Linux, Android, or iOS
- Web Browser: Google Chrome, Mozilla Firefox, Microsoft Edge, or Safari (latest versions recommended)
- Hindi Phonetic Keyboard:
    - Windows: Enable Hindi Phonetic Keyboard from Settings > Time & Language > Language
    - Mac: Install Hindi Input Tools from Mac settings

CHAPTER 5

Proposed System & Implementation

5. Proposed system & Implementation

5.1 Block diagram of proposed system



5.2 Description of block diagram

Components:

- User: Represents a player who participates in the game by playing quiz and letter-guessing challenges.
- Admin: Represents an administrator who manages the game, monitoring user performance.
- Login: The process through which users authenticate themselves using their credentials to access the system.
- Home: The main interface where users choose between the Quiz Game and the Missing Letter Game.
- Quiz Game: A mode where users answer multiple-choice questions to test and improve their Hindi vocabulary.
- Missing Letter Game: A mode where users fill in a missing letter in a Hindi word using the Hindi Phonetic Keyboard.

- Update Score: A function that tracks and updates the user's score based on their performance in both game modes.
- Database: Stores information about users, scores, and game progress.

Interactions:

1. User Login: A user enters their username and password to access the system.
2. Home Page Access: After logging in, the user is redirected to the home page to select a game mode.
3. Game Selection: The user chooses either the Quiz Game or Missing Letter Game.
4. Playing the Game:
    - In the Quiz Game, the user selects the correct answer from multiple choices.
    - In the Missing Letter Game, the user types the correct missing letter using the Hindi Phonetic Keyboard.
5. Score Update: After each correct or incorrect attempt, the system updates the user's score.
6. Database Storage: The database stores users' scores and game progress.
7. Admin Functions: An admin can monitor users' progress and scores.

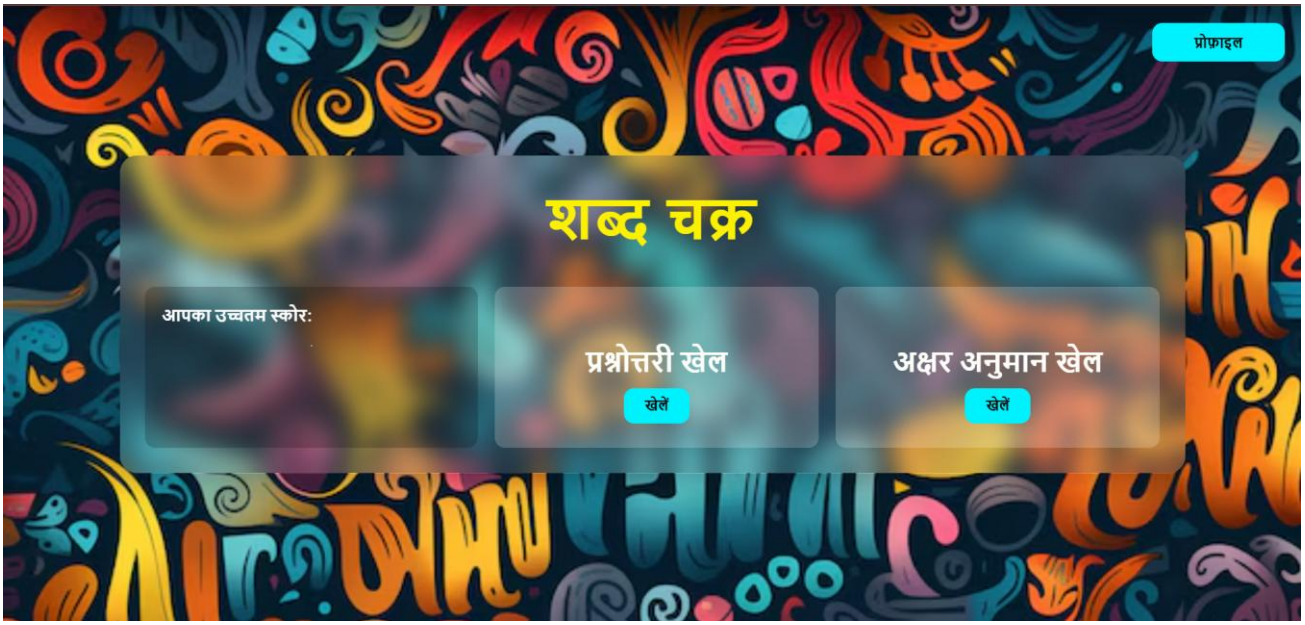
Data Flow:

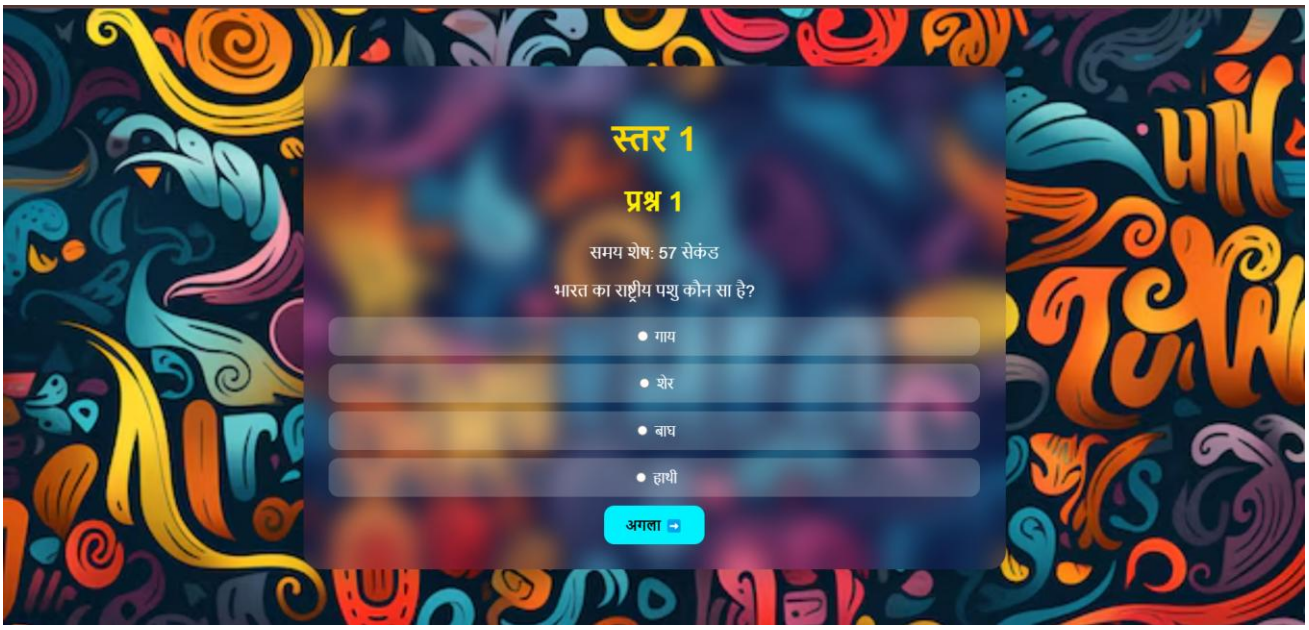
- The database stores all relevant information about users, scores.
- When a user logs in, their details are retrieved from the database.
- When a user plays a game, their scores are recorded in the database.
-

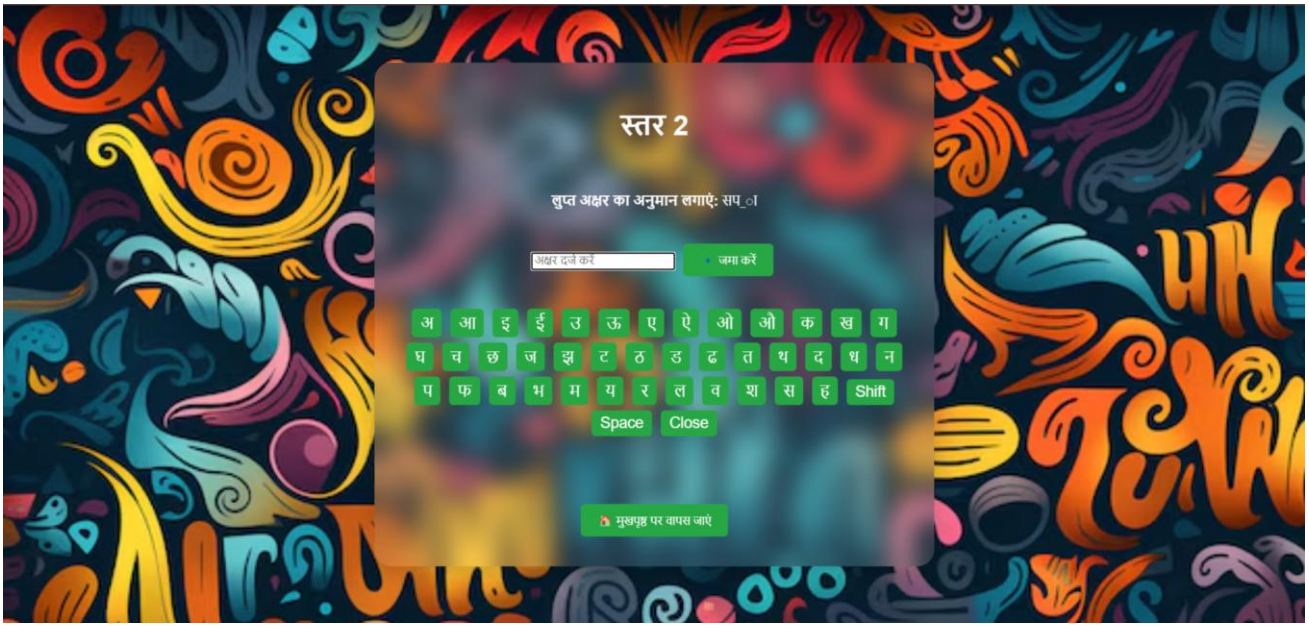
5.3 Implementation

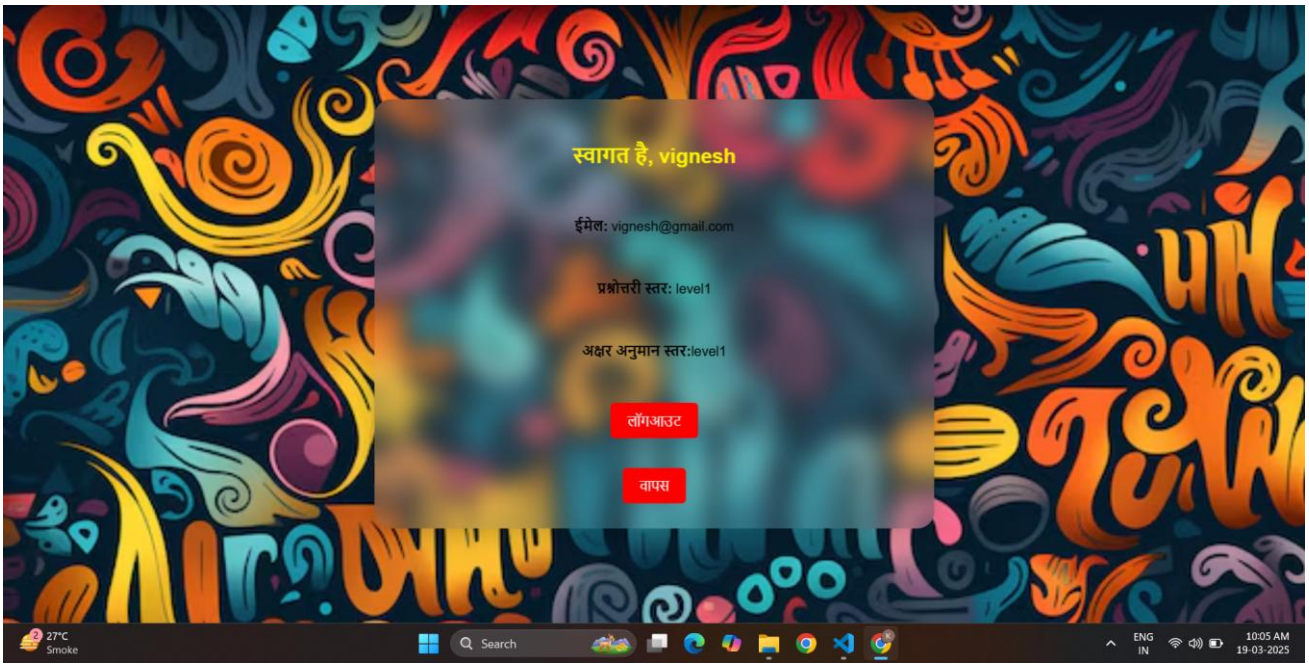
Implementation of proposed system must be included here. Students can explain

implementation using screen shots of output.









5.4 Advantages/ Application/ result table can be included in this subsection.

Advantages of the Hindi Vocabulary Web-Based Game

1. Enhances Hindi Vocabulary
    - The game helps users improve their Hindi vocabulary through interactive quizzes and letter-guessing challenges.

2. Boosts Cognitive Skills
    - Engaging in word-guessing and quiz-based games enhances memory, problem-solving abilities, and language retention.
3. User-Friendly Interface
    - The game is designed with a simple and intuitive interface, making it easy for users of all ages to play and learn.
4. Accessible Anywhere
    - As a web-based game, users can access it from any computer with an internet connection, eliminating the need for downloads or installations.
5. Interactive Learning Experience
    - Instead of traditional rote learning, users actively participate in word-based challenges, making the learning process fun and engaging.
6. Real-Time Score Tracking
    - The game tracks and updates users' scores dynamically, motivating them to improve their performance.
7. Encourages the Use of Hindi Phonetic Keyboard
    - The letter-guessing game requires users to type in Hindi using the Hindi Phonetic Keyboard, promoting better typing skills in Hindi.
8. Suitable for All Age Groups
    - Whether students, professionals, or language learners, the game caters to anyone looking to strengthen their Hindi language skills.
9. Minimal Hardware and Software Requirements

- Users only need a basic computer with a browser and an internet connection to play the game

CHAPTER 6

Conclusion

6. Conclusion

The **Shabda Chakra** web-based game is an interactive platform designed to enhance users' Hindi vocabulary and cognitive skills through two engaging modes: **Quiz Game** and **Letter Guessing Game**. With a user-friendly interface, real-time score tracking, and the requirement of a **Hindi Phonetic Keyboard**, the game provides an immersive and educational experience. Being web-based, it ensures accessibility from any device without additional software installations. The **admin panel** enables easy management of user performance, making the system scalable for future enhancements. Overall, **Shabda Chakra** serves as an effective learning tool for students, professionals, and language learners, offering an engaging approach to Hindi language development. Future improvements may include **advanced difficulty levels, multiplayer features, and AI-based personalized learning paths** to enhance user experience.

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