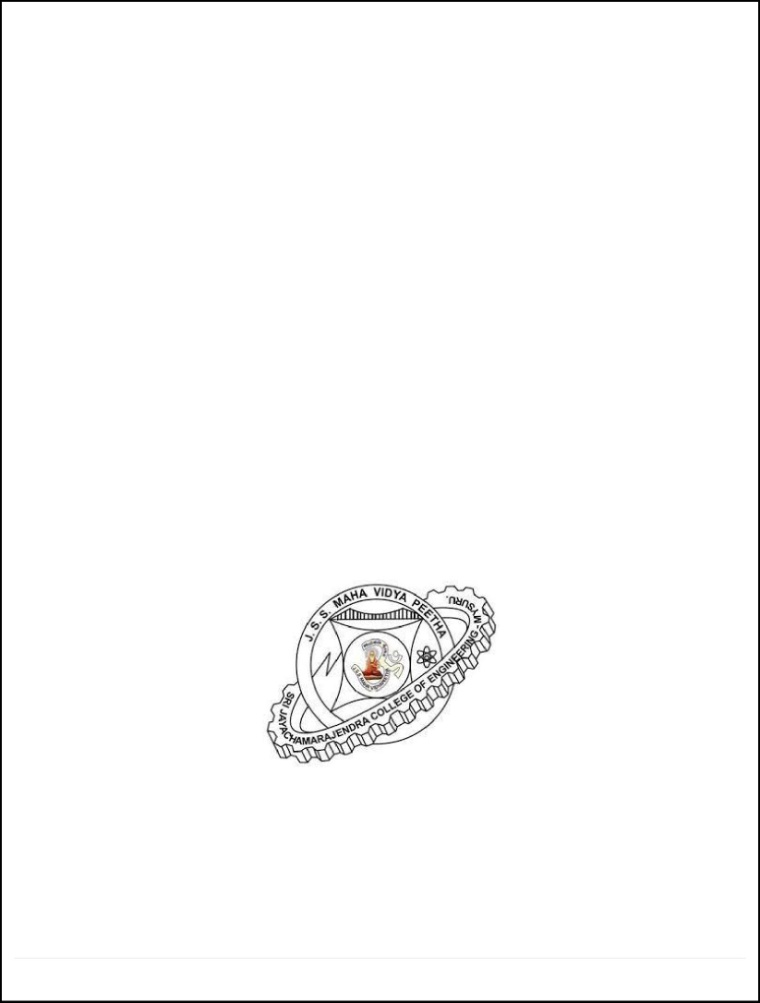
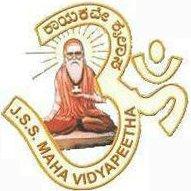
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A Project Report on

**“WORD QUEST- GAME DEVELOPMENT”**

Submitted for fulfilment of Requirements of Event-2 of

**Bachelor of Engineering**

In

**EC460: Data Structures and Algorithms**

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**March 2018**

**Abstract**

The gaming industry is the economic sector involved in the development, marketing and monetization of games. The project focuses on developing a program whose code is based on the similar concepts. In this project, we propose a documental approach to the development of a gaming program based on jumbled words. The project uses applications of data structures which makes the code more basic and easy to analyse. The program code is written in C++ language which provides combination of Object Oriented Programming with the bare metal control of manual memory management. The algorithm is divided into several modules i.e. modular programming is used to divide the program code into sub programs. This makes the code more compact and easier to identify errors, if any. Similar projects developed in the same domain are quite difficult to understand. The proposed project makes use of a code which provides an easy approach and makes it simple to understand for beginners.

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**Introduction**

Data structures are an essential tool in programming and large data management. Linked list, a data structure which is a collection of independent nodes that contain some information has an advantages of including dynamism, relatively easier insertion and deletion of elements. Singly linked list can be traversed only in one direction whereas doubly linked list overcomes this disadvantage and can be traversed in both directions. Linked lists are implemented for different purposes.

This project deals with the implementation of the word guessing game predominantly using doubly linked lists. Operations such as insertion and deletion of elements are illustrated as the game progresses and provide an insight into the working of doubly linked lists. The game also features searching and comparison techniques along with random word selection. The combination of database management and data structures along with constructive use of graphical interfacing is introduced in the proposed project.

**Objectives**

* Word quest is a game development program that uses maximum application of data structure. The project focuses on bringing the level of understanding to students/beginners.
* Word quest is a simple but prudent game to check the intuition and tactics of a player in guessing the word. It is used to practice vocabulary and also for fun.
* Working on this project will help us to have a better understanding of the concepts of C++ like object, class, data abstraction along with graphics interfacing.
* It concentrates on building up problem solving skills of game developers and provides user improvised gaming experience.
* An important target of this endeavour is gaining knowledge about database management.

**Motivation**

Puzzles and word quests are games that are loved by all. As puzzle lovers and programming geeks, we were motivated to know the actual working of the game and the logic it involves. While we looked into the codes of this game, we found that the existing code are very difficult to understand and are very lengthy. Further investigations to understand the working of the game urged us in developing one such game ourselves. We have aimed at coding a game whose program which would be simple to understand by any user with programming basics and would be optimized. Keeping this as our motive, with further investigations, the program can be played. The proposed project gives users and programmers a simple approach towards coding. The focus is on developing a project with implements the use of data structures and provides a clear picture of the working of the game along with the graphics and database management.

**Problem statement and approach to solution**

Technology is the application of scientific knowledge for practical purposes.. The effect of technology’s drastic improvement can evidently be seen in gaming. Gaming which was once considered to be just an entertainment aspect has grown as business sector. Scientific studies have proved that games like puzzles and quizzes play a major role in increasing the healthy functioning of human brain.

Our game development program points to improving skills of great consequence. These include cognitive ability, motor skills, IQ, vocabulary, concentration, productivity, problem solving ability, etc. Word quest allows the user to select a particular category of their interest and guess words based on the options of letters available upon knowing the number of letters present in that word. Every right guess increases his chance of winning and fetches an increase in score. As the total score increases the user is allowed to access more categories by unlocking new levels.

The algorithm below gives a clear picture of the program code running in the back ground which employs primitive data structures:

STEP 1: Start

STEP 2: Addition of Words into Dictionary (database) in different categories.

STEP 3: Compare letters inserted by user with the letters in the random word.

STEP 4: IF (letter is present)

Step a: Add letter in the respective position on output screen.

Step b: Delete letter in the available letter options.

Step c: Increase Score, Retain chances.

Step d: Add score to total.

Step e: IF (total>x)

Print: Next level unlocked.

X=x +constant.

Step f: Goto step 3.

STEP 5: ELSE

Step a: Delete letter in available letter options.

Step b: Decrement chances.

Step c: IF (chances==0)

Go to step 3(NEW GAME)

STEP 6: IF user selects EXIT

END.

**Software requirements**

| SOFTWARE | DESCRIPTION | SUPPORT | COMPILERS | TASK |
| --- | --- | --- | --- | --- |
| Code Blocks | Code Blocks is a free C,C++ and Fortran IDE built to meet the most demanding needs of the users. It is an IDE with all the features needed to do the basic programming required. | Windows, Linux, Mac OS | Written in C++,  Compatible with C,C++, Visual C++ and Fortran | Basic programming in C++, data management, design implementation and analysis |
| Simple DirectMedia Layer  (SDL) | Simple DirectMedia Layer is a cross platform software development library designed to provide a hardware abstraction for multimedia hardware components.  Used in building 2D and 3D games. | Windows, Mac OS, X, Linux, iOS, Android | Written in C  Compatible with C,C++, C#, Python, etc | Graphical representation with timer, audio, video display functions,  To make user  interactive game |

**Mode of demonstration**

The entire crux lies in the effective demonstration, a key aspect of every project. Since we are using C++ with SDL as the programming language, the effective working of the game shall be demonstrated on any computer i.e., the results shall be demonstrated via simulation on a pc.

The system with the correct edition of Microsoft windows shall be chosen. The demonstration will also include a small presentation regarding the instructions of the game. These instructions shall also be included as a part of the game and the user shall be allowed to access it at any given time during the course of the game to simplify it.

**Literature survey**

The implementation of the game, Word quest will be made using data structures. Many projects have been developed in this domain. This project is based on the same sphere of influence, but is more efficient when compared to the existing algorithms and codes in following ways:

* Easier Debugging: When compared to previously existing codes, the present one is simple and easy to understand.
* Maximum Application of Data Structures: The maximum usage of concepts related to data structures and implementation can be found in this game. The program is designed recursively and ends when the user has won, lost or decides to exit.
* Modular Programming: With use of object oriented programming in C++, the program is separated into independent modules making it optimized, such that each module contains everything necessary to execute one and only aspect of desired functionality.
* Easier Debugging: Errors can be easily identified, as they are localized to a subroutine or function.

The main approach of the program developed is to make the computer guess words in an intelligent fashion. We’ve developed such that no internet access is required and is more student friendly.

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