

**Sukkur IBA University Kandhkot Campus**

Semester Project Report on the idea of:

**The Quran Explorer**

Course:

**Data Structure (Java)**

Couse Instructor:

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# Introduction

**(Alif Laam Meem) is a Quran Explorer Java Application.**

**It is used to find Qurani Ayats with specific words.**

**We just need to Search any English word and Ayats with surah name linked with that word will be visible to you.**

**Each Ayat has it’s English Translation (Sahih International picked from Quran.com) and Arabic verse.**

**It shows the Surah Name, with Ayat Number and Surah Number after searching a word.**

**We have used Binary Search Tree to load word file into program to attain (Log n) time complexity while Searching Ayats.**

**We have used Linked List to link Ayats to words.**

**We used Separate Binary Search Tree for each Character like we do in English Dictionary Programs. We created Array of 26 BST Object, 1 Tree per Character.**

**Problems we faced**

**We didn’t have any Specific library or File storing all Quranic Verse with Ayat and Surah Numbers, so we have to collect it manually into a text file.**

**We were reading text files using BufferedReader, which was read files in UTF-8 format and File was saved in UTF-16 to store Arabic verses in txt file. We used input stream reader with UTF-16 mode inside BufferedReader to Read Arabic Text.**

**We were saving each tag words manually, sorted in Alphabetical order. To attain (Log n) in BST, we have to save file in such a way that it should a balanced tree while reading it, or it will cause a (n) due to sorted insertion in BST.**

**We thought AVL tree will provide a balanced BST lexicographically after insertion of sorted words, but it was not giving required results.**

**Form#01**

* **This will ask**
* **user to input the**
* **word and it will**
* **show all the words**
* **starting with that**
* **character.**

**Form #02**

* **This form will show all the ayats of each suraha’s where the given word is mentioned.**
* **Once the user click on**
* **the ayat of surah, ayat**
* **translation will be**
* **displayed**

**Form #03**

* **This form simply show the**
* **translation**
* **Here we have given**
* **Options for back and**
* **Search again.**