An Efficient Student ID Lookup System by Intelligent Key in Radix Tree

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ABSTRACT
The college ID card is one of the very important archives for the student, since it is the only way to prove the student's identity interior the college and during exams. In this study a lookup system is proposed by examine ability of applying the radix search tree approach. So ID number is classified into five parts each one represented by one or more digit that indicate group of fields. Many bushes are built, each node includes part of ID number, the last node in the leaves contains students information, thus when searching process is applied every ID number can be tracked according to desired path through its tree until reach the leaf, where the student's information is stored.

General Terms
Radix search tree.

Keywords
Identity, complexity, Radix search tree, Lookup system.

1. INTRODUCTION
Now-a-days with rise of populace, individuals have to be known and it's as of now a prerequisite for each organization from a corporation to a larger than average nation to have the personality card (ID) for the each people. In this manner, presently for each instructional organized relate ID card for an understudy is obligatory. ID card is claimed to be the layout of any understudy so. It's extremely basic for a scholastic founded to deliver ID card to each understudy of it. ID card is generally thought of to be the outline of a student's data.

Ready to define an identity document as the record that offer assistance to create the correct confirmation of the individual character of a individual [5].The ID is additionally known as the parcel of recognizable proof or the paper of any individual. It may be a little standard estimate card and ordinarily called the character card that can be effectively kept in a take or interior wallet. A card can appear information of the recognizable proof almost any individual counting names (to begin with title, surname, and final title), age, address, an international id photo to have color of body, hair and eyes. These sorts recognizable proof are utilized commonly input of school for the understudy, companies for the employees. Hence it can be said that student ID card is the card of recognizable proof which is utilized for holding particular characteristic of understudies.

2. RELATED WORK
There are some of attempts to create ID number via different Methodology and other working are proposed radix tree approach to create a Arabic word corpus and telephone book numbers.

2.1 Adding identity numbers to deep Neural networks
Proposed a common system for inserting a DNN ID in deep neural network models to distinguish the DNN models. To this conclusion, a conspire of producing DNN ID is suggested, which is the measure for demonstrate possession verification. After inserting, the demonstrate can total the initial execution and possess a one of a kind ID of this demonstrate as well. Tests have appeared the DNN ID can precisely confirm the possession of our prepared demonstrate [1]

2.2 Student Identity Card Based On Advanced Quick Response Code Technology
A progressed QR code based students recognizable proof card is suggested which can supplant the understudies personality card that are been utilized by and by in larger part of Africa Colleges and past. This unused framework gives a one of a kind way of distinguishing a person as an understudy. The proposed personality card can be utilized for other purposes as against the display ID card that can be utilized for recognizable proof alone. This card can serves as examination ID card since all the courses enlisted can be uncovered by fair a filter of the proposed ID card on the QR scanner. It'll kill the issuance of examination card and the issue of pantomime. Computerization of the understudy personality card will diminish the human push of conventional understudy personality card [2].

2.3 Retrieving Mobile Phone Information Based on Digital Search Tree
A versatile phone word reference was created through utilizing the method known as radix look tree. A preparing dataset was utilized to prepare this lexicon and the exactness was in like manner calculated for the created number-checker. And by a large exactness of 100% was decided. These comes about may adequately ensure that the created word reference can be productively built utilizing the radix look tree. The proposed framework tries to spare the numbers employing an advanced search tree in arrange to create the forms of looking and recovering customer's data simpler and quicker. In like manner, these comes about may be effectively utilized by portable communication companies as the sum of memory required to store information will be decreased and information recovery will be speedier[3].

2.4 Novel Approach for Arabic Spell-Checker: Based on Radix Search Tree
The title after developing a spell-checker using radix search tree technique. It is trained using training dataset and the accuracy is calculated for the developed spell-checker

accordingly. Thus, the overall accuracy almost reached to 100%; it provides a high accuracy. The above evidences are sufficient to make sure that the radix search tree could be used efficiently to build a spell-checker for Arabic language. The future scope will convey to find new techniques that can keep spell-checker as highly efficient and accurate as possible [4].

3. METHODOLOGY

UNIQUE STUDENT IDENTIFIER

A unique student identifier is typically a number or code assigned to students enrolled in public university that allow to monitor, track, organize, and transfer student records more efficiently and reliably.

In Albaqa'a Applied University – Prince Rahma Collage assign a standard generated series of numbers to individual student, with each student assigned one unique identifier. One of the primary advantages of a unique student identifier is that it's used in place of a student's name or other personal information that may compromise the privacy or reveal the identity of the student. For privacy-related reasons, national numbers are generally not used as unique student identifiers. Once a unique student identifier has been assigned, it remains attached to the student as long as he or she is enrolled in the collage if a student transfers from specialization to another in a same collage then a new Id number will be generated according to the order in the new a specialization.

Recently, actually identifiable data has become a subject of talk, as well as a college change tool, basically due to the developing control of computers and information frameworks to gather, communicate, and possibly compromise individual data in ways that were once distant more troublesome or impossible. Whereas a comprehensive outline of the subject is past the scope of this asset, the following examples illustrate two ways in which actually identifiable data converges with endeavors to progress instruction frameworks, or educating:

Data quality: in the event that understudies are assigned a special identification number in a data framework, that "unique understudy identifier" can be a more compelling way to organize data in a database than, say, a date of birth, given that birth dates will unavoidably be shared by many understudies. When different forms of personally identifiable data are used—first and final names, special understudy identifiers, dates of birth, etc.—the reliability and accuracy of information in framework can be improved essentially.

Data-informed instruction: Modern learning technologies, online course platforms, and educational computer program frameworks have given educators access to an unprecedented amount of data around students that can be utilized to analyze or screen student learning needs and scholastic advance in ways that were once in the past outlandish. In a few circumstances, teachers can utilize this data to alter or personalize learning encounters and guidelines techniques and possibly make strides or quicken learning advance. For case, online courses and learning frameworks are ordinarily able of collecting an expansive amount of data around clients, extending from student results on inserted appraisals to information around keystrokes, clicking patterns, log-in and log-out times, or the sum of time that passes, or the amount of time that passes between when a question is shown and when it is answered. Teachers may at that point analyze and utilize this data to progress instruction for students. In expansion, online courses and other forms of educational program may utilize the information to supply versatile learning experiences—i.e., the frameworks may automatically adjust learning assignments or questions based on student answers and other data collected by the framework.

In this work a sample of university numbers was chosen as it included 3 categories of academic degrees (intermediate diploma, bachelor's degree, higher diploma) and two specializations. For each degree within one college during the time period (2018-2021)

Based on these criteria, the university number has been divided into 5 sections, each section expresses a reference as table 1 all students are assigned an 11-digit university ID as table 2 format:

Table 1. Sections of ID Numbers

Student ID Format	Prefix key				serial number
	Degree	Admission years	Collage name	Specialization	001-999
Example	2	21	120	314	002

Table 2. Students ID Numbers Format

Key	Meaning
[2,3,4]	[Diploma , bachelor , high diploma]
[2018-2021]	Admission years
[120]	Collage name
[314,212,310,330,130,133]	Specialization
[1-199]	Serial Number

3.1 Created Radix Tree

In this research about 6000 ID numbers are stored in a corpus to be invoked within the trees then prepare and test the Radix search technique tree. By radix tree approach 3 trees are built, each one present's scientific degree. The trees are built by keeping a track of ID numbers keys, and in the previous of final node the serial number is stored then a student information be found in the leaves. Student ID lookup system based on the radix tree is composed of two phases:

First, Building the radix trees phase.

The method is applied by tracing the following phases:

1. Each ID number in the corpus is taken individually.

2. The ID number is split into 5 parts.

3. Each part is taken individually to be stored in a tree according of its order in the ID, so the first key will be one digit stored in the root of the tree, second key is contains of 2 digits stored in the children then third key be 3 digits stored in the next level, fourth key 2 digits also stored as child of the previous level and the final part is 3 digits presents the serial number of the student. (See Figure 1).

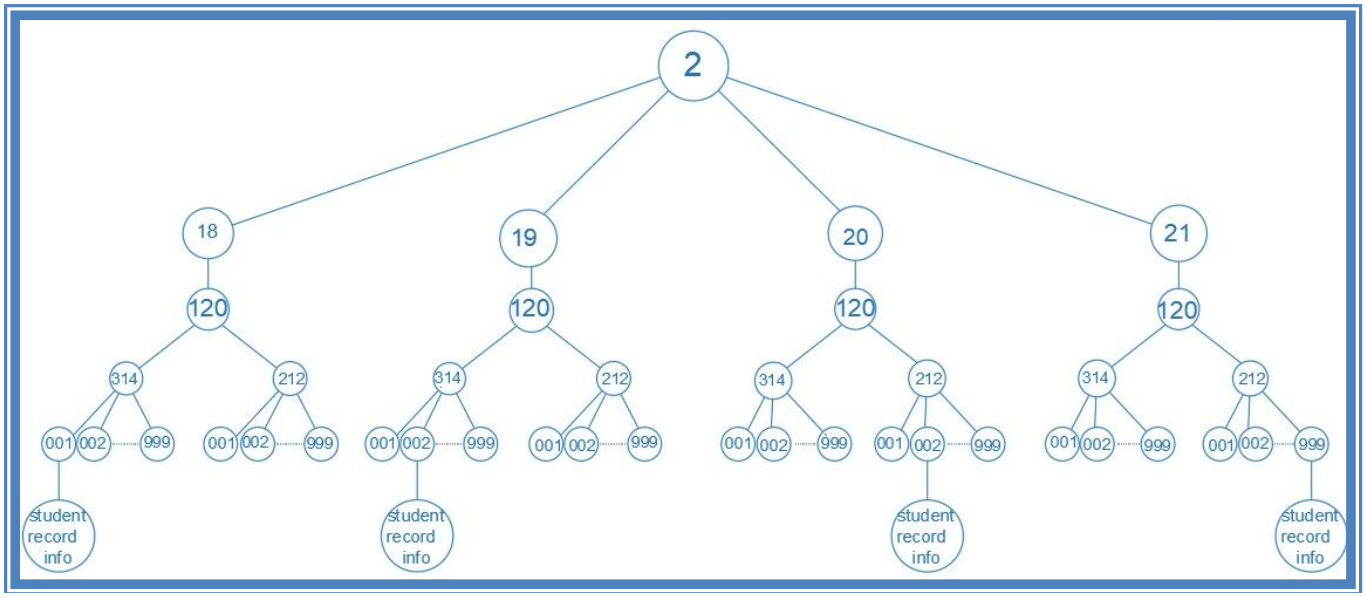

Fig 1: Intermediate Diploma Students ID tree

Example:

If the ID number [221120314001] is entered then the track begin by Intermediate Diploma degree tree since the first digit is (2) so the tree which has a root by this value is Diploma degree, continue search on it over the children to reach (21) which indicate Admission years, keep the same track to get node with (120) value that tell us the college name, now specialization node is appear (314) finally the student serial number is linked with student information.

Second, Students Information Search phase.

After producing the radix trees for all the IDs within the corpus, the tested sample is entered within the ID field. Each ID is processed independently and the searching of student information is executed once the button of < بحث > is clicked then student information fields are filled. (See Figure 2).

Searching process is applied as follows:

1. ID number is split into 5 parts.
2. Part 1 contains one digit is extracted to determine the suitable search tree since the first digit is represent a root which indicate to the scientific degree.
3. Part 2 contains two digits are extracted to specify suitable track that indicate admission year.
4. Part 3 contains three digit are extracted to choose the track that reach to collage key.
5. Part 4 also contains of three digit are extracted to specify suitable track that indicate student specialization.
6. Part 5 is the last one which contains three digit which are determine students serial number. This node points to the student record information.

Fig 2: Student ID Lookup System Graphical User Interface

4. CONCLOSION

In the proposed system provides an efficient way to retrieve student information based on ID number by divide it to 5 sections each one present specific reference. This technique reduces the time search and storage space so it is an efficient idea to be applied on look up system. In future work a flag may be insert in the tree that determine if the student expect to graduate or not, and may add another flag to indicate if the student borrow a book from the library or not.

5. REFERENCES

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