

Ex.No 17 **Data Structures Mini Project**

Date: 04/10/2019

TITLE: Student Admission System

TEAM NAME: Powerpuff Girls

TEAM MEMBERS:

| | |
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Aim:

Today all the work at the time of admission of the students is done manually by ink and paper, which is very slow and consumes much effort and time. In the modern world of technology, computers are affecting our lives in more ways than we probably are aware of, COMPUTERIZED MANAGEMENT maintaining information of an educational institute, colleges, others – the list is endless. The main principle behind the need of a college admission system is easy supervision of institutes. It can handle the details of students. The Student Database has been designed taking into account the practical needs to manage student data. Moreover, it provides security at product level as well as user level.

Description:

The design concentrates on 2 types of users:

1. Admin
2. Students
 - As a Student
 - ◆ New student registration for admission
 - ◆ Student login
 - Check for admission status
 - Cancel your admission registration
 - As the Admin
 - ◆ Display all students registered for admission
 - ◆ Close time for registration

Our project provides a management system for the admission process of students based on their cutoff marks. Students register with their name, cut off marks and other details and are provided their own system generated sequential admission number. They also create a new password at the time of registration. Students may later login with their admission number, marks and password to either cancel their registration or check their admission status which is their waiting list number.

The admin logs in with a set password and is facilitated to view all the registered students in the form of a directory for ease. The admin may also stop time for registration beyond which students will not be allowed to register.

Admission is given to the students with relatively higher marks upto the capacity of the college. When students register at different times with the same mark, preference for admission(a lesser waiting list number) is given to the students who registered first. We have used a (priority) list within each node of the binary search tree, to do the same.

Data Structure used:

Binary Search Tree is a node-based binary tree data structure which has the following properties:

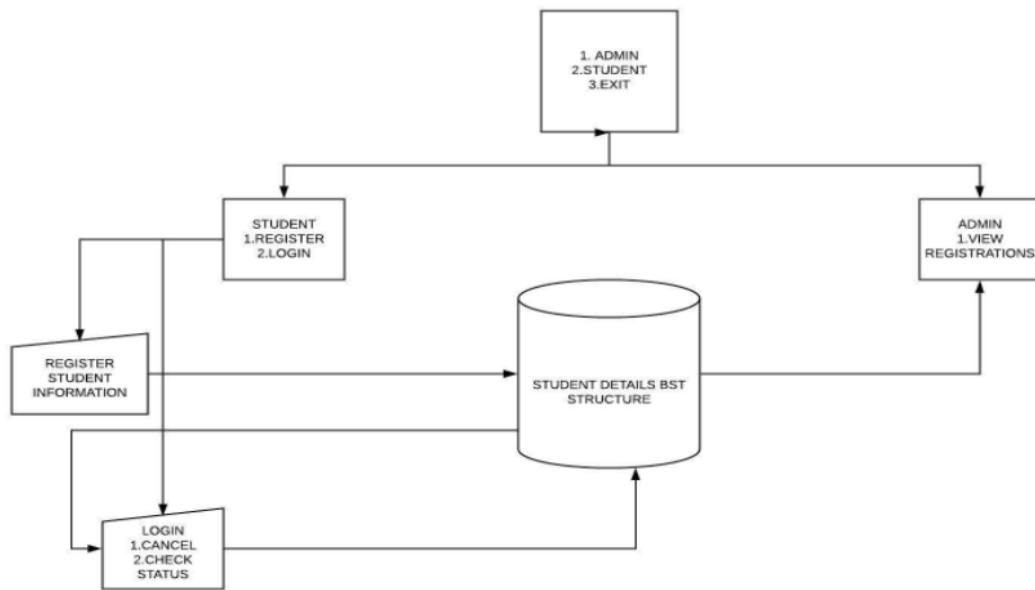
- The left subtree of a node contains only nodes with keys lesser than the node's key.
- The right subtree of a node contains only nodes with keys greater than the node's key.
- The left and right subtree each must also be a binary search tree.

List is a linear data structure that represents a number of unordered values. We have implemented the same using arrays to access elements using indices.

Students as they register for admission are sorted into a binary search tree based on their cutoff marks. A (priority) list accommodates students with the same mark as they register at different times. A queue has not been used for the same to allow for space of cancellation where students in random indices of the structure will want to delete their registration data from the database.

The binary search tree is inorder traversal with a slight modification where the right child is visited first, followed by the parent and then the left child to allot status (waiting list number) to each student of list of each node.

Data Layout:



Outputs:

```
WELCOME TO SSN COLLEGE OF COMPUTER SCIENCE!
Login As:
[1]Admin
[2]Student
[3]Exit
Enter your choice:
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[1] Register
[2] Login
[3] Exit

Choice :
```

REGISTER

Enter Name : Ram

Password : *****

Your admin no. is: 2

Cutoff : 199

USER LOGIN

Name : Ram

Cutoff : 199

Password : *****

WELCOME STUDENT!

Enter your choice:

[1]Cancel registration

[2]Check status

[3]Exit

1

Enter admission number: 2

Enter cutoff: 190

WELCOME STUDENT!

Enter your choice:

[1]Cancel registration

[2]Check status

[3]Exit

2

Enter admission number: 1

Enter cutoff: 199

Your waiting list number: 2

WELCOME STUDENT!

Enter your choice:

[1]Cancel registration

[2]Check status

[3]Exit

```

Enter choice
[1]View students registered
[2]Exit
Enter choice: 1

Swetha 199 2 ;Ravi 199 3 ;
      Sushmitha 200 1 ;
      Tarun 190 4 ;
      Raj 187 5 ;Enter choice
[1]View students registered
[2]Exit
Enter choice:

```

Learning Experience:

- We have learnt to store lists of structures of data in binary search tree.
- We have learnt to implement the list as an array which is a member of the node of the binary search tree.
- We have learnt to perform operations of deletion, display and insertion on the list integrated with BST insertion, display and deletion.
- We have learnt to perform the application of the student admission system using the BSTADT and LISTADT.
- We have learnt to work in groups and divide work, and integrate outcomes with this project.