

PROJECT TITLES

MIS	NAME	Project Title	Brief Description
112003001	Mrunali Adhal	Implementation of kd trees	Performing various operations on KD trees, like insert, delete, search, etc. This program generates a cloud of points of complex two-dimensional geometries using quadrees. This cloud of points can be used in meshfree methods for numerical flow simulation over that geometry.
112003003	Kedar Ajay Adkine	Mesh generation using Quadtree	An english guide which contains a dictionary, spell checker, parts of speech using trie and file handling.
112003004	Advait Karmalkar	English Guide	PageRank works by counting the number and quality of links to a page to determine a rough estimate of how important the website is. Using Adjacency matrix
112003005	Shikhar Agara wal	Pagerank	In this project, I try to implement a garbage collector for C programs which work on the principle of reachability of objects to detect memory leaks. Data Structures- Hashmap, Hashset
112003006	Anshul Agrawal	Garbage Collector in C	Given an input string formed from the letters {A,C,G,T} represents DNA or RNA sequence. Approach is to make a Trie from the input where each letter will be a node. Aims: To find whether RNA substrings exist. To store unique DNA sequences in less space. Each path taken in a trie will lead to a new string of letters (forming DNA string) which can be mapped to a unique individual. To also name the sequence according to input given, by writing code for the naming table biologists use. It uses linked lists, hash table, array, min heap etc. Creation of a game tree use minmax/alphapruning algorithm to predict the next best move (it will be 5-10 layers deep, depending on runtime). To predict the next 'best' move, a number will be calculated via a plethora of functions to rank how that move ranks as compared to others.
112003008	Anika Chawla	RNA DNA sequences operations using TRIES data Structure	Finding minimum path for data packets to travel through routers (graph).
112003010	Anushka Vijaykumar Naik	covid tracing	In computer science and information theory, a Huffman code is a particular type of optimal prefix code that is commonly used for lossless data compression. Huffman coding takes input and then counts frequencies which belong to data symbols. It can be characters or characters doesn't matter. Then it builds a tree which has with more frequent data are closer to the root. Then the program manipulates the size of characters by their distance to root. This part important, program keeps the inputs symbols, size of to their distances to the root, not by their data types. So the complete data represented by less bits from now on.
112003013	Bakliwal Aagam	Best Chess Move Predictor	Using 2 dimensional KD trees to store the business based on its coordinates in the tree node, along with its details in a linked list connected to the node. Then performing nearest neighbour search for entered coordinates and also a radius search.
112003014	Gourav Bangad	Route table	compressing files with zip command which used huffman coding. We will be able to search shortest paths Add/ remove flight paths or airports And thus manage connectivity between airports Functions implemented: 1)insert(H,k) 2)getMin(H) 3)extractMin(H) Insert new patient details, Display patients data, Search the patients data It can Insert, search and delete words in the dictionary. It can also printing the words in alphabetical manner.
112003017	Nayan Suryabhan Bhabad	Text compression using Huffman Coding	Huffman encoding and decoding algorithms will be used for data compression in which majorly Binary tree is the data structure used. A priority queue is also used which can be implemented using heap data structure. I referred (http://www.ijcstjournal.org/volume-5/issue-1/IJCST-V5I1P10.pdf) to know about data compression and also visited some other sites.
112003021	Aditya Shankar Bornare	Nearest buisness/hotels/companies search system using 2 dimensional KD trees.	This project is about making a dictionary using trie data structure. All the words of the dictionary would be stored in a .txt file. Each time the code is run, the dictionary is loaded onto a trie data structure. On selecting the exit option, all the nodes are deleted and memory is deallocated.
112003022	YASH RATNADIP BURBURE	zip command	The features in this would be : 1) Insertion of a new word 2) Searching of a word 3) Deletion of a word 4) view all the words in the dictionary 5) Prefix searching of any word 6) Autocompletion of word
112003023	Yash Chandak	flight route management using graph data structure	Create social network using graph data structure
112003024	Jayraj Charane	Implementation of binomial heap	A heap memory manager is responsible for the management of heap memory. The heap memory manager performs the following fundamental memory operations: Allocation - performed by malloc and calloc, Deallocation - performed by free.
112003025	Anushka Bhagwat Chavan	Hospital Management System using Splay Trees	1)Using prefix tree here i am going to implement a dictionary of various words. In which we can perform add, view, search etc. The words data will be store in a text file.
112003027	Prasad Premdas Chavan	Dictionary using tree data structure	2) I want to implement path finding algorithm using graph data structure but actually didn't get it.
112003030	Sakshi Sudhir Chougule	Data Compression using Huffman Algorithms	1)Using prefix tree here i am going to implement a dictionary of various words. In which we can perform add, view, search etc. The words data will be store in a text file. 2) Using huffman coding we can store data in less bit and there will be less memory consumption. The sample data will be stored in text file which will be compressed and then decompressed to output file. It compressed using frequency with which character appear and assign them with that much bits accordingly. 3) I want to implement path finding algorithm using graph data structure but actually didn't get it.
112003031	Christy Bijju	Dictionary using Trie Data Structure	An attempt to develop a program that displays suggestions for a word (like displayed when we search on google) using trie data structure.
112003033	Ninad Deo	Dummy social networking	e.g i, we write hel Then suggestions displayed : hello, hell, helix, etc.
112003034	VEDANT DESHMUKH	HEAP MANAGER	A program that carries out block chain transactions using dynamic hash, linked list and arrays. You can create users, carry out transactions between users and I will also add functionality to predict block chain attacks
112003036	Avani Dhongde	Dictionary using prefix tree. 2)Dijkster algorithm for finding shortest path 3)image processing using quad tree	The main idea of Splay tree is to bring the recently accessed item to the top of the tree, this makes the recently searched item to be accessible in O(1) time if accessed again. This idea of splay tree I am using here in search engine. Implementation of Prefix (Trie) Tree and its Application (like text search, auto complete, prefix matching etc.)
112003036	Avani Dhongde	1)Dictionary using prefix tree. 2) Data compression using Huffman coding 2)Dijkster algorithm for finding shortest path 3)image processing using quad tree	
112003037	Mithali Dhoot	Autocomplete using trie	
112003038	Mihika Dravid	Implementation of block chain	
112003039	Sanjana Prabhakar Gadagi	Search engine using Splay trees	
112003040	Rachana Prafulla Gade	Trie Data Structure Implementation and Application	

112003041	Shrushti Ramesh Garde	Image Compression
112003043	Aishwarya Dattatraya Gavar	Spelling error checking using trie tree
112003045	Sumit Girnar	Phone Directory.
112003046	Swapnil Santosh Gite	Implementation and visualisation of splay trees
112003047	Om Prakash Gurav	Phone directory implementation using trie data dstructure (prefix tree).
112003048	Susmita Sanjay Hubale	Searching and Auto completion of words using trie tree
112003050	Shruti Jadhav	EERTREE- Palindromic tree
112003051	Shubham Jagtap	Image compression using huffman coding
112003051	Shubham Jagtap	cryptographic hash function
112003052	Vanshita Jain	File Server System.
112003053	Sahil Anup Jaiswal	Heap memory manager
112003054	Jay Chitale	Huffman coding
112003055	Jaybhaye Suraj Rajendra	Text editor
112003056	Saurabh Bhalchandra Jog	Implementation and application of Trie data structure
112003058	Shivani Joshi	Text Editor using persistent data dstructures
112003059	Juhi Shekokar	grep command
112003060	Shivprasad kale	Air traffic simulator
112003061	Tanvi Mahesh Kale	XML parser
112003062	Samruddhi Amol Kamthe	String Repetition Detector as an application of Suffix Tree.
112003063	Nishad Prasanna Kanago	Router tables
112003064	Akhilesh Suryakant Karoshi	Contact search list
112003066	Om Khare	Research analysis between Piece Table and Gap Buffer used in text editors.
112003067	Vaishnavi Khedkar	The Barnes Hut Approximation
112003070	Bhushan Kohpare	Text Editor using Gap Buffer
112003073	Abhishek Ramchandra Kulkarni	Nearest neighbor search using octrees
112003074	Chinmayee N. Kulkarni	DATA ENCRYPTION USING BINARY TREE
112003075	Harshmohan Kulkarni	H-Tree: A data structure for fast path-retrieval in rooted trees.
112003079	Rohit Magar	LSM-Trees and B-Trees: The Best of Both Worlds

The project uses huffman coding for image compression which is a lossless data compression technique. It is based on the frequency of occurrence of a data item i.e. pixels in images.

Spelling error checking and auto-complete according to the user's input is very necessary. The spelling error checking algorithm based on trie tree is very fast to find the word written correctly and if there are some mistakes, system will give suggestion related to that spelling. This will improve time complexity as well.

Application which stores the phone number where we can add the number, delete the number, update the number, display the numbers and many more applications.

Node of the splay tree stores IP address of the website, and the tree is arranged according to the number of searches made for a particular website. Thus enabling user to access a particular and most searched website faster. Png image of splay tree will be generated using GraphViz library. It will show the status of the tree.

I'm using prefix tree here because of its extremely fast pattern matching. TRIE is an ordered tree data structure that uses strings as keys. In Phone book, the telephone number should be unique, address is unique, but the name could be duplicated.

1)I use trie tree because of less time complexity (even in worst case, that is $O(n)$) compare to other trees for search, insert and delete operation.

2)Searching, deleting, finding longest prefix, ect going to implement.

3)Basically we use this feature in searching engine, suggestions of Gmail from history, auto complete features for code editors, etc.

Palindromic tree (Eertree) is a tree based data structure that is specifically used to tackle problems involving palindromes of a string and its substrings. It can solve problems like 'longest palindrome in a string', 'count of palindromic substrings' etc.

huffman coding is basic compression method, we can use it to compress image there are many hash functions like Secure Hashing Algorithm, BlowFish, MD5 which use a hash function (one of the advance data structures)

B-trees are used for efficient search of files in disk management system.

Using this B-tree a server file system can be designed in which each folder can store maximum N number of files.

Viewing and analyzing Internal working of heap memory during various operations

Data compression: Huffman coding

The goal of this project is to give you an opportunity to practice implementing and using stacks and linked structures. You should also continue to use object-oriented design.

Implementation of Trie(Prefix tree) data structure with its applications such as prefix matching, text search, auto-complete, etc.

Creating a text editor which allows us to modify the previous versions of text we created.

I will be implementing all functions of the grep command with regular expressions

This simulation is helpful for Air Traffic Controllers who direct flights to their destinations correctly.

XML parser using tree data structure

Suffix Tree is commonly used for applications related to string and pattern

searching. Using these applications, we can generate a repetition detector in texts.

A routing table contains the information necessary to forward a packet along the best path toward its destination

The project is based on tree data structure.

If we want to find no from starting with letter 'A' it will give all contacts starting with name 'A' like that

There are two types of data structures widely used in making text editors. Piece table is the latest data structure that is used. Gap buffer was used previously. Though piece table has a lot of pros, there are some cons too. I will try to do research analysis by implementing piece table myself and taking the required data related to Gap buffer from the internet and compare both of them on different test cases. I will also try to develop a hybrid of these two and check for its possible application.

It is the method for solving N-Body problem of predicting the individual motions of a group of celestial objects interacting with each other gravitationally.

Gap Buffer is a data structure used for editing and storing text in an efficient manner. So, I'm going to use it for text editor. It will be mainly designed for linux.

Implementation of nearest neighbor search algorithm using octree data structure and it's application to find closest pair of points.

Since the world is becoming predominantly digital, there is a need for data

security. Hence this idea will contribute towards enhancing security measures. Encryption

: The sender's message or the Plaintext, is converted into an unreadable form using a

Key k and the text obtained is called the Ciphertext. The caesar cipher algorithm will be

used for data encryption. This cryptographic algorithm is mathematical functions to

perform encryption and decryption of the original data and it works in combination with

a secret key consisting of alphabets, numbers, special characters, words, phrases etc. This

will be multistage operation. Firstly the code will be encoded using ASCII value and

lengthy arithmetic operations and then this encoded data will be stored in nodes of

tree. To make the data more complex, different operations like swapping nodes of tree

on even or odd order will be done and hence the data will be encrypted.

Data Structures: Binary Tree and Queue(Linked List Implementation)

The novel method of traversing through trees helps in making the repetitive traversal to

a particular node faster by storing some cache in the form of Hash Tables. The H-Tree

structure is generated by first finding the path from the root to each leaf and storing this

information on a preliminary H-Tree; then, each internal node is paired up with that

leaf, whose path to the root includes precisely it.

With what I've read till now, I observed either LSM or B trees are being used for database

management. This research proposed use of both with transitions between them as and

when required i.e. when reads are more than writes B trees perform better and LSM

trees perform better when writes are more than reads. Will try implementing the same.

112003080	Anvita Ajay Mahajan	Spell Checker and Analyzer using Trie Data Structure
112003080	Anvita Mahajan	Ppm Image Manipulator
112003082	Saksham Manwatkar	Student record system using B Tree
112003083	Sayali Mate	Food Delivery system
112003084	Mihika Sanghvi	Huffman code text compression
112003086	Pradnya Prashant More	router and routing table Implementation using splay trees
112003087	Rututja Arvind Mugal	Suffix Trees using Ukkonens Algorithm
112003093	Chinmay Sandeep Naik	Chess game
112003096	Saish Netankar	Text Editor
112003100	Vaishnavi Pabalkar	Database System using B+ trees
112003101	Pande Harsh Nilesh	Text Editor(specialized for large files)
112003105	Sakshi Sadanand Patil	Huffman coding
112003106	Shrirang Patil	Quiz game
112003107	Tanmay Patil	Huffman coding and decoding algorithm
112003108	Vishal Patil	Splay tree
112003109	Ishan Patwardhan	Intelligent driving system
112003110	Dhanashree Mahadeo Pawar	Reimplementing tree command
112003111	Nega Jayendra Pawar	Version control system
112003111	Neha Jayendra Pawar	Version Control system based on Unix commands
112003112	Siddhesh Dipaksing Pawar	File Compression
112003114	Prerna Tulsiani	Hashtag Counter
112003116	Shyam Randar	String matching
112003117	Ritesh Narendra Chaudhari	Encryption and Decryption
112003118	Rushikesh Neve	Nearest Neighbour Search using KD-trees
112003119	Akash Ravindra Sadekar	B-Tree
112003120	Sahil Kamdar	Spell Checker
112003121	Kshitij Salunke	Text file compression
112003126	Sehajdeep Singh	File compression

It will check whether the spelling entered by the user is correct or not from the given dictionary. Also it will give some suggestions for the word if it is partially entered or misspelled.

Implement Compression, decompression, mirroring, overlaying images using quadrees
Storing the personal details of students like name, mis, phone no. and taking the attendance when that specific function is called, using B Tree.
Signup using credentials
Using trie data structure for autocomplete purpose(To search different dishes,etc)
Using LRU cache to view recent orders that were placed.
In this project, I will encode and decode the text . Encode - from normal text format to Huffman code. Decode - Convert it back to text format. .
Jai: structures used will be trees, priority queues and linked lists.
For this it first reads the ip address of data packet. Then it compares that address with network ID's that are available on its ports. Once network id is matched it will send the data packet to the gateway registered on the network ID.
Splay trees - the fastest data structure when it comes to searching operation.
Another advantage is its splaying operation .
Once a data is searched in splay trees the tree will rearrange itself such that the searched node will become the root.
We can store the network IDs as nodes in splay tree. Due to splaying property the most searched ip address will be at the top so next time if we require the same address it will save time.
I'm planning to create a structure having a network ID, subnet mask, metric, gateway and left and right child pointers. (The tree will be organized by network IDs).
Once a data packet comes the ip address will be read and the network ID will be calculated by a function .
This network ID will be searched in the tree and according to that the data packet will be forwarded.
If the network id is not matched it will be sent to the default gateway.
It will have following operations :
1) Adding network IDs
2) Deleting a network ID
3) Searching the network ID
4) Splaying
5) Rotations
6) Displaying the Routing Table (printing the tree)
(While working if i find more operations that i can implement i will add them)
Linear time implementation of suffix trees using ukkonens Algorithm

A text editor is a C program that lets a user enter, change, store, and usually print text. Implementing Insert, Delete and Search function in a database using B+ trees
Creating a text editor using Ncurses GUI and gap buffer data structure in C language. It can open very large files, even bigger than RAM size.

It is the variable compression algorithm in which the size of data is to be reduced.
Using tree data structure , making a quiz game
Different levels of trees indicate varying difficulty of quiz questions
Huffman coding is a compression algorithm. We assign a code to every character of data based on its frequency and arrange them using Tries.
Splay tree is a self-balancing Binary Search Tree. The main idea of splay tree is to bring the recently accessed item to root of the tree, this makes the recently searched item to be accessible in O(1) time if accessed again.
This project is based on finding shortest path between source and destination using Dijkstra's Algorithm. The code will be written mostly in C language.
Application which will be having implementation of tree command of linux

I will be building a Version control system based on the Unix commands.
This will be implementation of diff and patch Unix command using Tree Data Structure.
I will be building a Version control system based on the Unix commands. I will be implementation of diff and patch Unix command using Tree Data Structure.
In this we will try to compress basically text and image files. We will use TRIE data structures for text files and DCT algorithm for image and gif. I will also try to implement video compression if I can do so.
A system to find the n most popular hashtags that appear on twitter. Data structures that will be used for the implementation are - 1) Fibonacci Heap - To keep track of the frequencies of the hashtags. , 2) Hash Table - key for the hash table will be the hashtag and value will be the pointer to the corresponding node in Fibonacci heap.
String matching + some other applications: Huffman tree.
Encrypting a string based on a certain operations to convert it into a ciphertext

And adding another function which will work in reverse to decrypt the ciphertext into original string
The nearest neighbour search (NN) algorithm aims to find the point in the tree that is nearest to a given input point. This search can be done efficiently by using the kd-tree properties to quickly eliminate large portions of the search space.
Operations on B-Tree (create, insert, search etc)
We can add our own dictionary for spell check.
Also add our own text file for spell checking

Huffman Coding

Building backend of file compression using Hoffman coding involving all data structure

112003127	Nisarg Shah	Advanced Data structure => Dictionary using Trie and Game => Boggle Solver	Boggle is a game with a letter board whose goal is to search for words that can be written using adjacent letters on the board The project would be management of contact information of several people using Binary Search Trees Implementing the autocomplete feature using Trie Data Structure in C. A comprehensive program which gives you 10 questions on a chosen topic from a range of topics. If you get a question right you progress and get a harder question, and if you get one wrong you get the explanation and a easier question. Users can also see their progress. The Questions will be ranked and stored in a hash table. The quiz will be formed in the form of a binary tree. The goal is to make sure the user understands the topic by the end. In communication; data compression is source coding where reduction of bits used is done. The overall aim is to use fewer bits to encode the data than the original number of bits using Huffman coding SEAM CARVING is a graphical application of DYNAMIC PROGRAMMING an image resizing algorithm that maintains important elements. Dynamic Programming is used to find the path in which pixels are deleted. ABLE TO TRACK,ADD,SEARCH PRODUCTS IN INVENTORY USING DATA STRUCTURES Implementation of malloc and free uses quadrees for image compression Network and device representation using graph, trie and LL following Dijkstra's shortest path algorithm. This project is a little search engine Using trie data structure. Data is written in .txt file and all contents will be loaded in trie data structure. Some of the features are: 1) Prefix search 2) Universal search Etc. Using suffix trees, a compressed trie, for pattern matching, that is, for Full text search. If time permits and if there are resources, I will also look at other applications of suffix trees such as data compression (LZSS) Quadrees for image compression works by recursively dividing the image into four subspaces with each holding the average RGB color and the error determining that color for its subspaces. The threshold is set based on that error and helps the tree determine if a node should be split further or not. basically a record management system using bst and linked lists keeping track of student details. The quadtree data structure is a special type of tree structure, which can recursively divide a flat 2-D space into four quadrants. Each hierarchical node in this tree structure has either zero or four children. We can use quadrees for image processing such as compression, mirror, etc.
112003128	Shaikh Adnan	Contact info Directory	
112003129	Qasim Shaikh	Autocomplete using Trie	
112003133	Shlok Abhijeet Deshpande	Integrated Quiz Platform	
112003134	Shrutika Nivrutti Jori	Compression of text using Huffman coding	
112003135	Shubham Manish Gandhi	Seam Carving	
112003136	Siddharth Chaudhari	PRODUCT INVENTORY TRACKER	
112003137	Siddhi Shinde	Heap Manager	
112003138	Sneha Venkateswaran	Image compression	
112003139	Soham Pundlik Mahajan	IP Routing Algorithm	
112003142	Isha Sheshrao Surve	Basic search engine using trie data structure	
112003143	Yash Sanjay Suryawanshi	Applications of Suffix Trees - Pattern matching	
112003144	Nayan Mohan Sute	Image Compression using Quadtree	
112003145	Tania Mandal	student management system	
112003146	Aman Tejwani	Image Manipulation Using Quadtree	
112003147	Pradnyesh Utpat	Search Engine Implementation(Trie)	
112003148	Vaibhav Garje	Chess Engine	
112003149	Vedanshi Shah	Garbage Collection	
112003151	Adwait Vipra	Confidel	
112003153	Ganesh Wankhade	Dictionary using trie data structure	
112003154	Sejal Yeole	File Zipper	
112003156	Dhanashree Namdeo Konda	Emoji Sort Puzzle Game using C	
112003156	Dhanashree Namdeo Konda	Emoji Sort Puzzle Game using C	
112003158	Shyam Aradhya	Heap Insertion/ Deletion	
112007014	Ved Sanjay Bilaskar	Dictionary using trie	
112010029	Anish Deshpande	Derivative Calculator	
142103001	Shitij Shailendra Agrawal	KD Tree	

142103002	Anuj Mohite	Quad-Tree
142103003	Nupur Vidyadhar Chavan	Autocomplete system using Trie
142103004	Pranav Mohan Choudhari	Phonebook Management Using doubly linked list
142103005	Pallavi Vijay Gaikwad	Tree command
142103007	Sanskar Ratnadeep Jamadai	Huffman Coding
142103008	RUCHA RAHUL KHEDKAR	" TREAP DATA STRUCTURE "
142103009	Vaibhav Khopade	Organizing file through command prompt
142103010	Aditya Mohan Metha	2-3 Trees Data Structures
142103011	Vedanti R. Raut	Data Compression using Huffman Coding
142103012	Rohit Shidid	Dictionary using Trie Data Structure
142103013	Snehal Sanjay Shinde	van Embe Boas Trees
142103014	Omkar Zore	Library management system

A visual description of Quad tree with implementation in c.

Autocomplete feature is mostly used in search box to return suggestions based on what user has typed. Autocomplete with trie is an implementation of an auto complete system using trie data structure.

This project is about Phonebook Management in this project doubly linked list is used. It contains functions like insert, sort, search by name/ mob no/ e mail, delete.

The tree command that will print a directory tree vertically, so that it looks like a tree. Using different printing techniques.

Huffman Coding is a technique of compressing data to reduce its size without losing any of the details. Using the Huffman Coding technique, we can compress the string to a smaller size. So in this project I use compression and decompression algorithms.

A Treap is a data structure which combines binary tree and binary heap. Hence, the name.

More specifically, treap is a data structure that stores pairs (X, Y) in a binary tree in such a way that it is a binary search tree by X and a binary heap by Y . If some node of the tree contains values (X_0, Y_0) , all nodes in the left subtree have $X < X_0$, all nodes in the right subtree have $X_0 < X$, and all nodes in both left and right subtrees have $Y < Y_0$.

This project is helpful when user will work on or through command prompt.

He or she can find the path of specified file or also can list out the file in specified directory.

Basically the application will manipulate the directory temporary according to users convenient

2-3 Trees is a data structure in which every node having children has either 2 children and one data element or 3 children and two data elements. It is basically a binary tree of order 3.

Huffman Coding is a technique of compressing data to reduce its size without losing any of the details. It was first developed by David Huffman.

Huffman Coding is generally useful to compress the data in which there are frequently occurring characters.

In this project I will be using the trie data structure to create a dictionary type application to search words and it will print the meaning of that word in response. So input will be the word and the output will be the meaning of that words.

ADT of vEB tree. Analysis of time complexity of each operation. vEB tree performs the priority-queue operations, and a few others, each in $O(\log(\log n))$ worst-case time. Library management system is a simple console application using linked list in C programming language. User can perform basic library management operations like issuing books, returning the issued books and displaying records of the issued books with the user details.