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BRANCH:-COMPUTER SCIENCE ENGINEERING

PROJECT NAME:-IIT SEAT ALLOTMENT

CHAPTER 1

INTRODUCTION

1.1 PROBLEM DEFINITION

- The purpose of this project is to allot IIT colleges for students who are qualified in IIT MAINS and ADVANCE entrance examinations.
- They are allotted based on criterion of ranks, caste reservations, minority, and citizen details. The students who are selected can enter their preferred institutions.
- Students will have to clear three rounds to enter the college. Students must either agree or disagree are leave the process if not interested.

1.2 OBJECTIVES

- IIT is an entrance exam conducted in India for students who are willing to join in India's top Engineering colleges.
- For medical and dental, students go for NEET exam.
- IIT exam is conducted to get a merit based seat in any engineering colleges. If your rank is very good, then based on your rank you can get best engineering colleges in India. As IIT colleges are for merit students the fees are very low and standards of education are very high.
- This examination is conducted only in India. Only Indian students are allowed to take this examination. Other country students are not allowed to take this examination.
- IIT is an exam conducted by the National Examinations Authority (NEA). Students spend about 8-10 hours in a day to clear this examination. This examination can be taken twice a year.
- The main aim of the IIT exam is to support the merit students who are willing to make their way in engineering fields in India. Govt of India provide them with

financial facilities by providing them free seats and reducing the cost of education and make them to get a good standards of education.

1.3 METHODOLOGY TO BE FOLLOWED

- **JEE** is an academic examination conducted every year in India. It will be conducted by one of the seven IITs IIT Roorkee, IIT Kharagpur, IIT Delhi, IIT Kanpur, IIT Bombay, IIT Madras, and IIT Guwahati by guidance of the Joint Admission Board (JAB).
- It is prerequisite for admission in the IIT. Other institutions like the Rgv of petroleum technology and the Indian Institute of Science also uses the marks scored in JEE Advanced for admission of students.
- Students who are already admissioned to IIT can't appear for the IIT Examination, but in the case of IISc, IISER, rgpit and other institutes, because these institutes select students on JEE ADVANCED mark criteria.
- Any one of the IIT College conduct this exam each year, on round robin rotation pattern. This exam has low qualification rate (about 9,369 in 479,651 in 2012; ~1.95%). The rate of qualification of this examination is about approximately 0.92%.

1.3.1 Eligibility criteria to appear in IIT Examination:

- Students should score good marks amongst the merit students who appeared for IIT examination. For example, for IIT 2019 the top 245,000 were eligible, but only few were got selected like 46.5% of those were open for all, the rest being reserved for castes like general, obc, sc/st
- Students who are appearing for exam should be less than 25 years.
- Students can appear for the examination most two times in year.

- Students should be qualified the Class 12 Board Examination (or equivalent) in the previous year.
- Students should not have accepted seat in any of IIT College earlier to get in IIT College again.
- In addition, students should at least have a good percentage in 12^{th} board examination or should at least have a rank in top 20 or secure 85% of marks. In case of SC/ST the score should be 65%.
- Students with physical disability of 40% need to submit their medical certification at help centre before the examination.
- Central Armed Police Force/Ex-CAPF.
- These students must provide a certificate provided by CAPF Unit mentioning candidate' parent declaring that he/she are domicile of India at the joining time of CAPF service.

1.4 EXPECTED OUT COMES

- It displays options for your selection

As follows:

- To see IIT colleges cut-off's
- To display calendar of events
- To know Ur seat

- It asks for your choice
- Enter Ur choice
- if option 1 is given the cut off's will be displayed
- If option 2 is given it displays the calendar of events of IIT colleges
- If option 3 is given it asks for Enter your wished college and enter your category and in category it asks for your preferred option 1.gm 2.obc 3.sc/stand select your option.
- And then enter your rank if your rank is there in the college you have entered and in your category, it displays the seat in allocated in college and in category if rank cut off is

not there in the college which you have selected and category then it displays seat is not allocated in your preferred college.

- If we follow these steps the application of IIT seat allotment is created.

1.5 HARDWARE REQUIRMENTS

Processor	: Any Processor above 500 MHz
RAM	: 512
Hard Disk	: 10 GB
Input device	: Standard Keyboard and Mouse
Output device	: VGA and High-Resolution Monitor

1.6 SOFTWARE REQUIREMENTS

Operating system	: Windows XP
Front End	: ASP.Net 2.0
IDB	: Visual Studio 2008
Data Base	: SQL Server Management Studio 2005
Server	: Internet Information Services

Database Connectivity: ODBC Sources (with SQL Server)

CHAPTER 2

DATA STURCTURES

Data structure is used for storing data in a format.

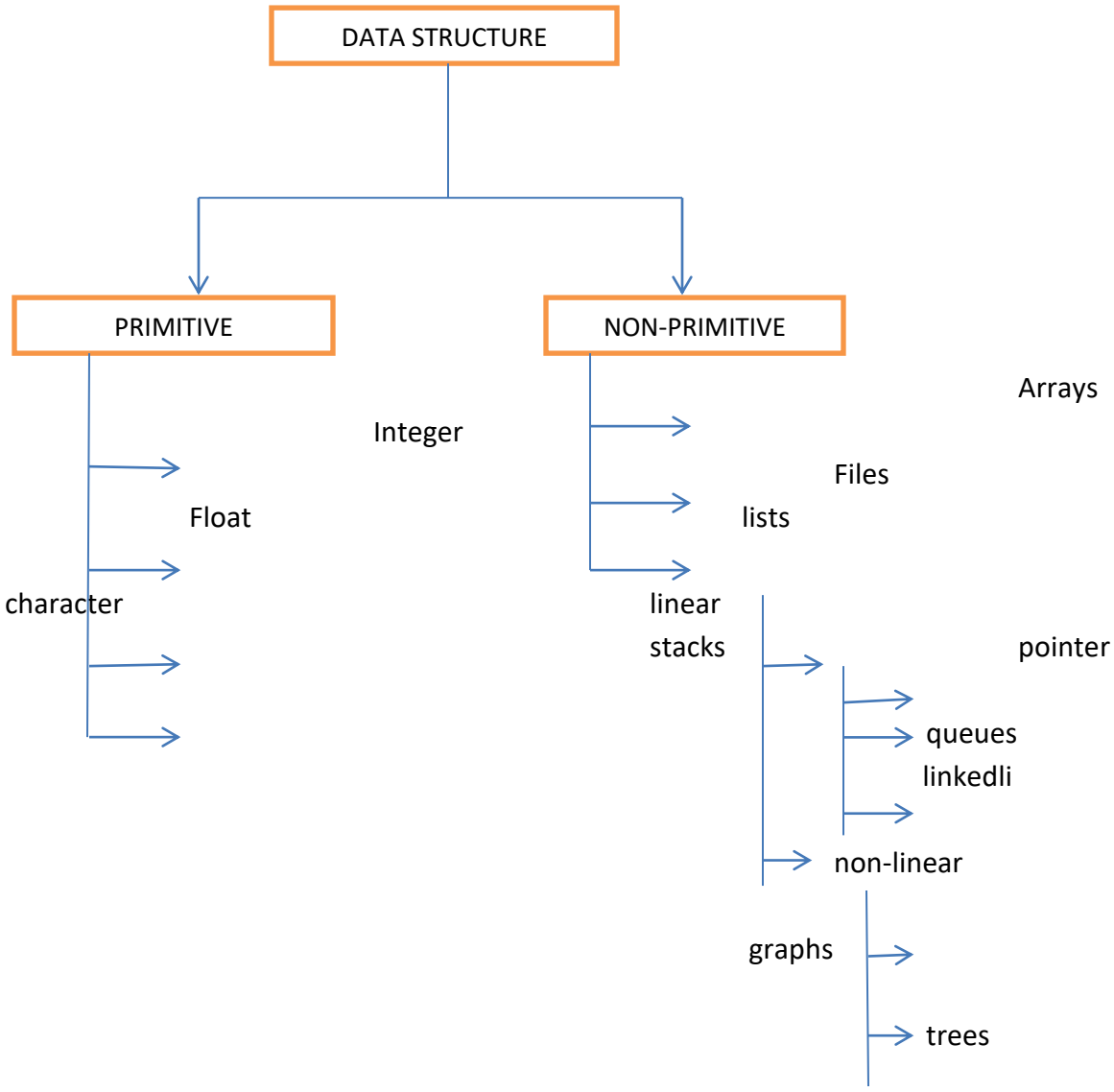

Fig2.1 Types of Data Structure

Data structures two types: primitive and non-primitive.
Primitive data structures can be directly manipulated by machine instruction.

Examples:

1. 1.int
2. Float
3. Char
4. Pointers

Non-primitive data structures can't be directly manipulated using machine instruction.

Examples:

1. 1.Array
2. Lists
3. Files

Lists are again classified into

1. Linear list.
2. Non-linear lists.

1. Linear list consists of:

(a) Stack

(b) Queues

(c) Linked list.

2. Non-linear list consists of:

(a) Trees

(b) Graphs.

Memory is allocated to the nodes using dynamic memory allocation functions such as malloc() ,calloc(),realloc() and free().

1.malloc():This function is used to allocate a complete single block of memory of the specified size.

- A pointer is used to store the address returned my malloc.

Syntax –

datatype*ptr=(datatype*)malloc(size)

2.calloc(): It is function which is used to allocate a specified size of memory in multiple blocks of same size.

- Each block should be assigned to null.
- A pointer is used to store the address.

Syntax –

datatype*ptr=(datatype*)calloc(size, number of blocks)

3.realloc(): For reallocating the allocated memory this function is used.

- A pointer is used to store the address returned.

Syntax –

datatype*ptr=(datatype*)realloc(ptr, size)

4.free() : It is a function which is used to free the allocated memory.

Syntax –

free(pointer name)

2.1 LINKED LIST

- A linked list is a linear data structure, in which the elements are not sorted at continues memory location
- A linked list contains of nodes where each node contains a Data part and a address of the next node.
- The first node is called head. If the linked list is empty, then the value of head is NULL.

2.1.1 ADVANTAGES OF LINKEDLIST OVER ARRAYS:

- Size of array is fixed, we must know its upper limit in advance. But in linked list size is not fixed.
- Insertion and deletion is easy compared to array.

- No memory wastage will be there in linked list.

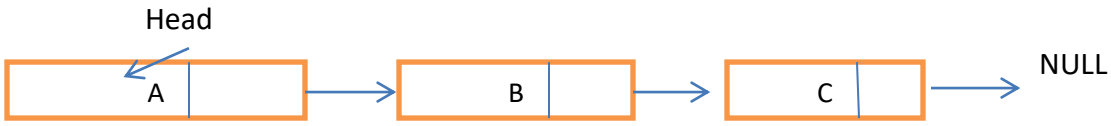

Figure 2.2 Structure of single linked list

Self referential code:

1.Single linked list

```
structslist
{
int data:
structslist *ptr;
}
```

2.Double linked list

```
structdlist
{
        int data;
        structdlist *prev;
        structdlist *next;
}
```

2.1.2 Advantages of linked lists over arrays:

- Increasing and decreasing of memory space after it is allotted is possible in Linked list.
- Insertion and deletion can be done effectively in Linked list.

2.1.3 Disadvantage of Linked List:

- Memory will be wasted because of Links.

2.2 STACKS

- Stack follows the **Last in First out (LIFO)** principle.
- The last added item into a stack is the first one to be removed from it the stack process.
- For example, you are having stack of tray on a table.
- The tray which is at top in the stack is the first one to be shifted if the tray is required from the stack.

2.2.1 Features of stacks

- Dynamic data structures

- It doesn't have a fixed size
- fixed amount of memory is not consumed
- According to push () and pop () operation the size of the stack id changed.
- Push () and pop () operation increases and decreases stack size by 1, accordingly.

2.2.2 Applications of stack:

1. Recursive
2. Fibonacci
3. Towers of Hanoi

2.3 QUEUE

- Queue is linear data structure which performs operation in a particular order and rules. First in First out (FIFO) is the order followed in queues.
- A good example of a queue is any queue like costumers who are waiting for resources. Customers who stand in first are served first.
- Stack and queue differ in removing.
- In a stack we delete the item which is added recently; in a queue, we remove the item which is added at the last.

2.3.1 Types of Queues:

Linear queue:

- The elements are organized in sequential order in Linear Queue. There are 3 components those are container of items, front, rear.

Double Ended queue:

- It is generalized version of queue. In this the organization of elements are similar to queue but it has 2ends, a front and rear. The clock wise and anti clock wise rotations are supported by this structure.

Circular queue:

- In circular Queue elements are stored in such a way that first element in queue follows the last element.
- It is mainly designed to overcome the limitation of simple queue.

Priority queue:

- It is a linear data structure. This queue allows to assign different priority levels to items placed in a queue.
- It needs to compare its items and accordingly order them.

2.4 TREES

- It is a non-Linear data structure and it is used to heirarical information.
- And it has parts like left sub-tree, right sub-tree and child nodes.

2.4.1 Types of trees:

- Binary tree
- Strictly binary tree
- Full binary tree
- Complete binary tree

2.4.2 Operations of trees:

- Inorder
- Preorder
- Postorder

2.4.3 Representation of tress:

- Linked List representation
- Array representation

2.5 GRAPHS

- It is a non-Linear data structure which consist set of vertices and set of edges that relate the nodes to each other.
- Vertices describe the relation among the set of edges.
- In mathematics this graphs are used to implement the concepts of directed and undirected graphs.
- This is an abstract data type.

2.5.1 Graphs can be represented in two ways

- **Adjacency matrix**: - Adjacency matrix shows that which nodes are adjacent to one other it is represented in square matrix.
- **Adjacency lists: -** It represents a finite graph of unordered collection of list. Less memory is occupied for this.
    - This has many real life applications. These are used in representing the networks.
    - In social networks like facebook, LinkedIn these graphs are used.
    - It is pictorial representation where the pair of objects are connected by links.

CHAPTER 3

DESIGN

2.4 DESIGN GOALS

- In this application we define structure.
- We start a do while loop in loop we start files. First file we use to store IIT colleges cut-offs. Second file we use for storing calendar of events of IIT colleges.
- And then Linked list is created. We allocate memory for each node. Colleges are added one by one.
- For n numbers colleges you can create n number of cases.
- As in colleges we want categories to be done so, cases of colleges we create cases of categories.
- For category cases we give if rank conditions for each category.
- So, it will check for your preferred college preferred category rank.
- After cases we end do while loop by giving while condition.

3.2 ALGORITHM

STEP 1:

- Include all the header files

STEP 2:

- Create a structure function with d1, d2, d3 character strings and a self-referential pointer as a member in it.

STEP 3:

- Declare the entire user defined functions and global variables.
- Create a main function and declare all the local variables of main function.
- Create a pointer to the file and access the pointer to do operations on file.

- First open the file and read the mode and giving its root address.
- Second use the in-built functions in the file to know the end of the file.

STEP 4:

- Create a loop and access the content in the file character by character.

STEP 5:

- Close the file with the help of a file pointer when all the content in it is accessed.

STEP 6:

- Create a linked list and store the colleges in Linked List.

STEP 7:

- By using switch case access the colleges.

STEP 8:

- And in colleges use another switch case to access the ranks.

STEP 9:

- Close the switch case.

STEP 10:

- End the main function.

CHAPTER 4

IMPLEMENTATION

4.1 MODULE FUNCTIONALITY

STEP 1:

- ✓ Main function.
- ✓ Defined structure.

STEP 2:

- ✓ We create do while loop we start the do.

STEP 3:

- ✓ In this we create three files for Storing the information about IIT .
- ✓ First file is for IIT colleges cut-off's.
- ✓ Second one stores about calendar of events of IIT'S.

STEP 4:

- ✓ And to store IIT colleges we use linked list in linked list we insert one by one college side by side.

STEP 5:

- ✓ After storing colleges in Linked list we end the loop because in output if we give college number in linked list it searches for that college.
- ✓ If college is found it stops and comes out of loop.

STEP 6:

- ✓ In next condition we create switch cases for colleges.

STEP 7:

- ✓ And in colleges again we create cases because in college we want in your category the seat is there for your cut-off or not.

STEP 8:

- ✓ Those cases are gm, obc, and sc/st. In cases we give condition of rank for that college

and for that category.

STEP 9:

- ✓ After giving sufficient cases of categories in colleges we break case for each case we close cases in college.

STEP 10:

- ✓ We create cases by using same method for (10) colleges.

STEP 11:

- ✓ After giving sufficient cases of colleges we break case for each case.
- ✓ And then we end the do while loop by giving while condition at last.

STEP 12:

- ✓ End the main function.

STEPS TO BE FOLLOWED TO GET APPLICATION PROPERLY:

- ✓ By implementing these steps, we can create this application.
- ✓ Without errors it can be done perfectly if we declare everything correctly and also by using proper syntax.

CHAPTER 5:

RESULT

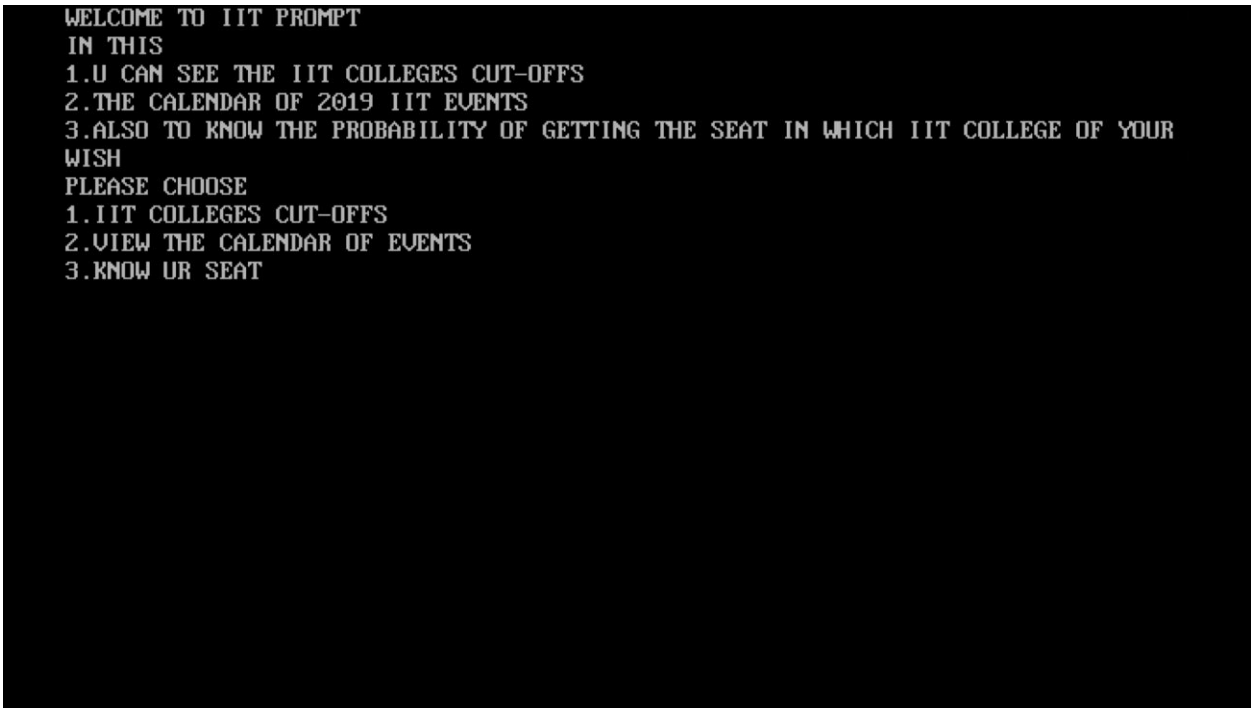

Fig 5.1

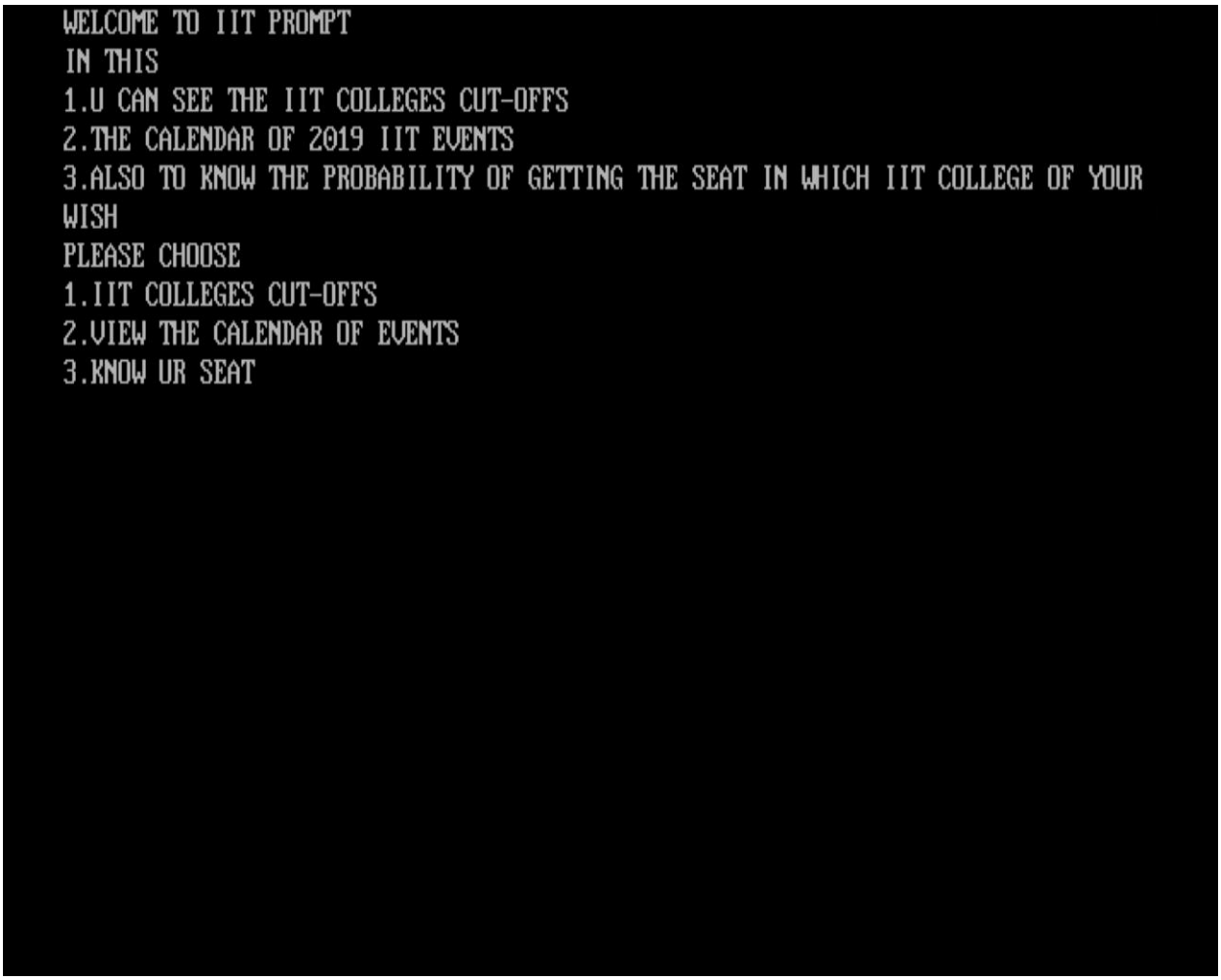
WELCOME TO IIT PROMPT
IN THIS
1.U CAN SEE THE IIT COLLEGES CUT-OFFS
2.THE CALENDAR OF 2019 IIT EVENTS
3.ALSO TO KNOW THE PROBABILITY OF GETTING THE SEAT IN WHICH IIT COLLEGE OF YOUR WISH
PLEASE CHOOSE
1.IIT COLLEGES CUT-OFFS
2.VIEW THE CALENDAR OF EVENTS
3.KNOW UR SEAT

Fig 5.2

```
1.U CAN SEE THE IIT COLLEGES CUT-OFFS
2.THE CALENDAR OF 2019 IIT EVENTS
3.ALSO TO KNOW THE PROBABILITY OF GETTING THE SEAT IN WHICH IIT COLLEGE OF YOUR
WISH
PLEASE CHOOSE
1.IIT COLLEGES CUT-OFFS
2.VIEW THE CALENDAR OF EVENTS
3.KNOW UR SEAT
1
institution   cutoff(sc/st)    cutoff(obc)    cutoff(general)
IIT BOMBAY        162             179             219
IIT DELHI         172             172             185
IIT Madras        249             264             264
IIT Kanpur        283             293             302
IIT Karagpur      295             308             313
IIT Roorke        381             399             431
IIT Guwahati      472             481             501
IIT Hyderabad     1043            601             780
IIT Dhanbad       1141            750             800
IIT Varanasi      1191            752             800
IIT Indore        1473            760             802
IIT Bhubaneswar   1486            770             812
IIT Ropar         1490            774             816
do u want to continue
 1 to continue
```

Fig 5.3

```
PLEASE CHOOSE
1.IIT COLLEGES CUT-OFFS
2.VIEW THE CALENDAR OF EVENTS
3.KNOW UR SEAT
1
institution   cutoff(sc/st)     cutoff(obc)    cutoff(general)
IIT BOMBAY        162              179             219
IIT DELHI         172              172             185
IIT Madras        249              264             264
IIT Kanpur        283              293             302
IIT Karagpur      295              308             313
IIT Roorke        381              399             431
IIT Guwahati      472              481             501
IIT Hyderabad     1043             601             780
IIT Dhanbad       1141             750             800
IIT Varanasi      1191             752             800
IIT Indore        1473             760             802
IIT Bhubaneswar   1486             770             812
IIT Ropar         1490             774             816
do u want to continue
 1 to continue1
1.IIT COLLEGES CUT-OFFS
2.VIEW THE CALENDAR OF EVENTS
3.KNOW UR SEAT
```

Fig 5.4

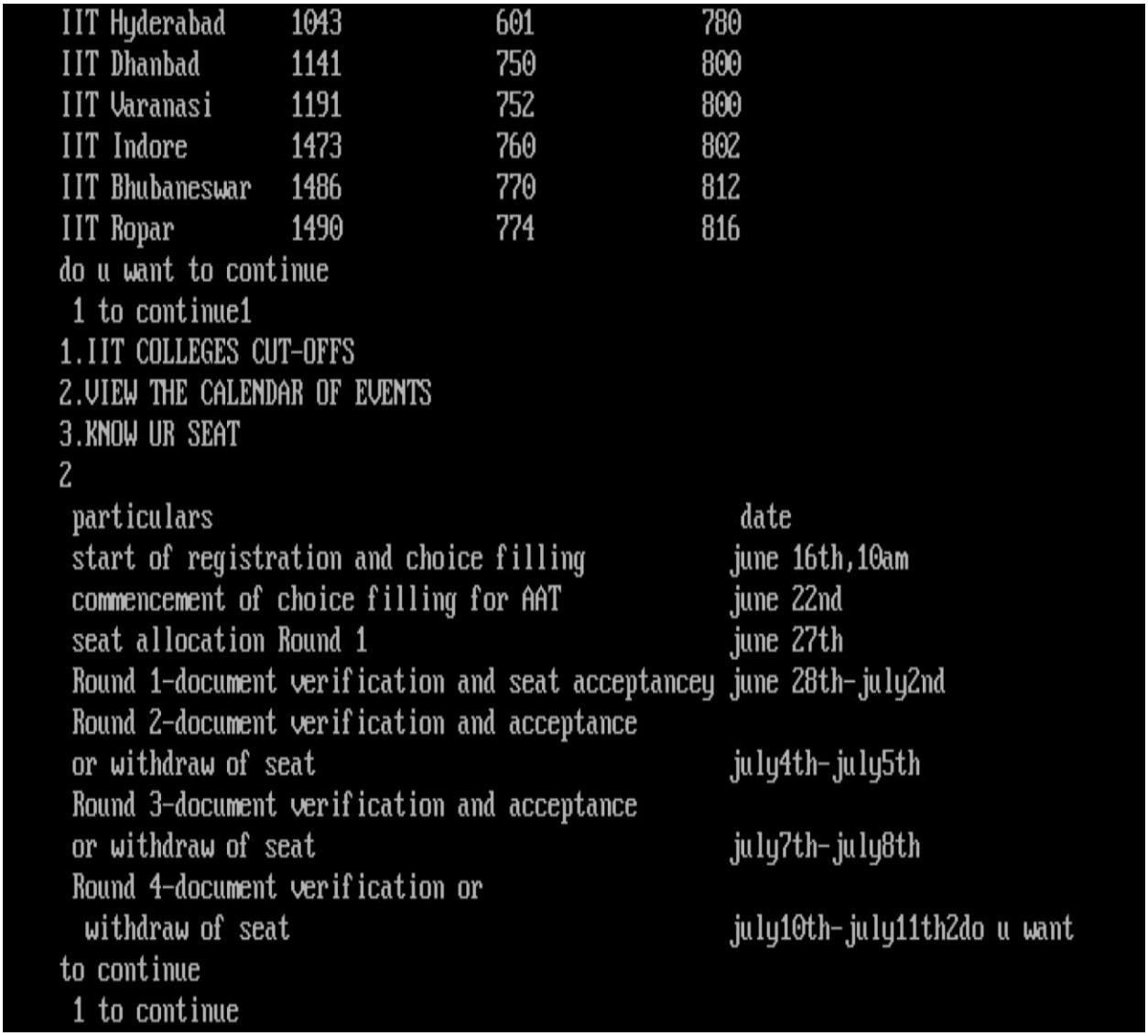
IIT Hyderabad 1043 601 780
IIT Dhanbad 1141 750 800
IIT Varanasi 1191 752 800
IIT Indore 1473 760 802
IIT Bhubaneswar 1486 770 812
IIT Ropar 1490 774 816
do u want to continue
1 to continue1
1.IIT COLLEGES CUT-OFFS
2.VIEW THE CALENDAR OF EVENTS
3.KNOW UR SEAT
2
particulars date
start of registration and choice filling june 16th,10am
commencement of choice filling for AAT june 22nd
seat allocation Round 1 june 27th
Round 1-document verification and seat acceptancey june 28th-july2nd
Round 2-document verification and acceptance
or withdraw of seat july4th-july5th
Round 3-document verification and acceptance
or withdraw of seat july7th-july8th
Round 4-document verification or
withdraw of seat july10th-july11th2do u want
to continue
1 to continue

Fig 5.5

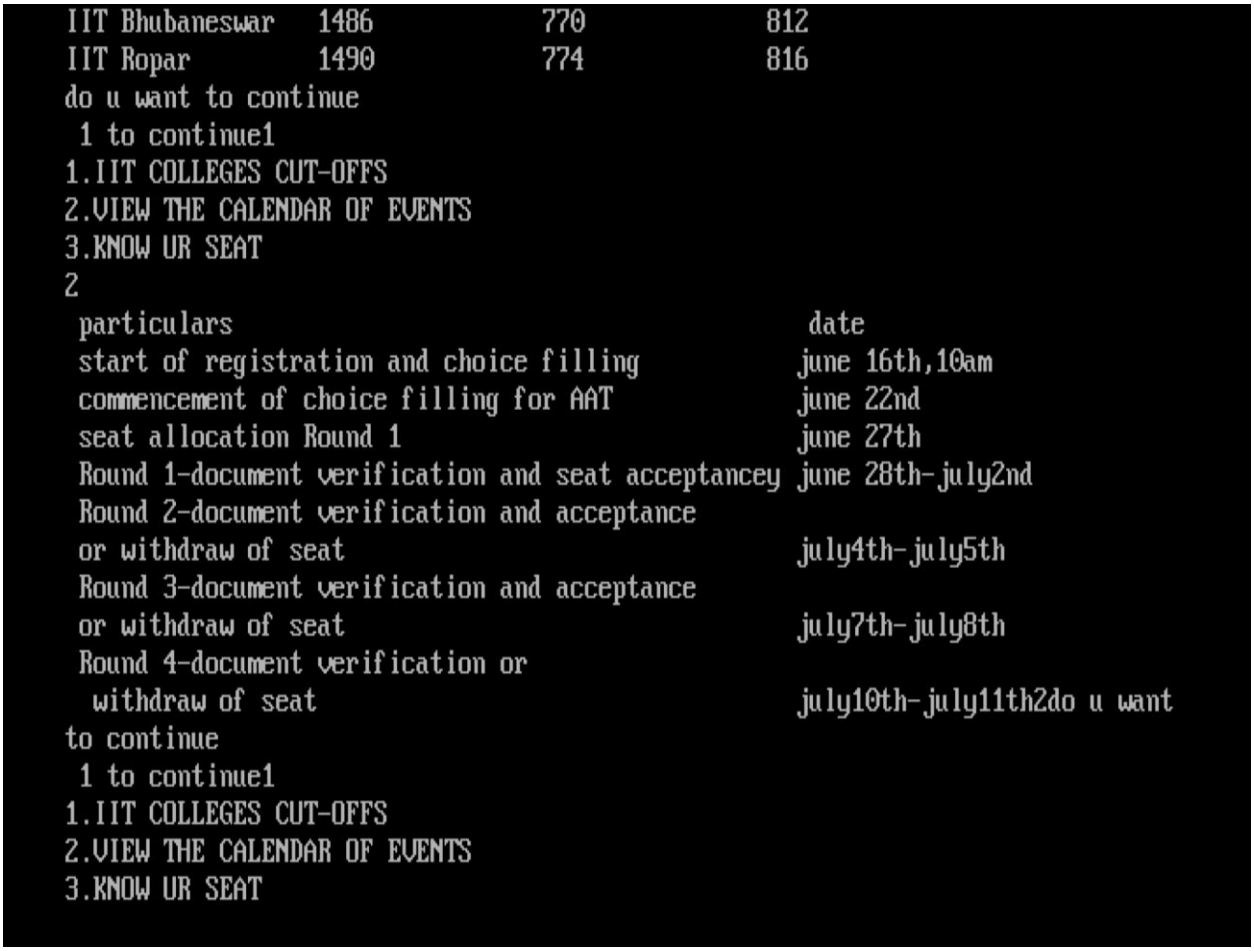
IIT Bhubaneswar 1486 770 812
IIT Ropar 1490 774 816
do u want to continue
1 to continue1
1.IIT COLLEGES CUT-OFFS
2.VIEW THE CALENDAR OF EVENTS
3.KNOW UR SEAT
2
particulars date
start of registration and choice filling june 16th,10am
commencement of choice filling for AAT june 22nd
seat allocation Round 1 june 27th
Round 1-document verification and seat acceptancey june 28th-july2nd
Round 2-document verification and acceptance
or withdraw of seat july4th-july5th
Round 3-document verification and acceptance
or withdraw of seat july7th-july8th
Round 4-document verification or
withdraw of seat july10th-july11th2do u want
to continue
1 to continue1
1.IIT COLLEGES CUT-OFFS
2.VIEW THE CALENDAR OF EVENTS
3.KNOW UR SEAT

Fig 5.6

```
 1 to continue1
1.IIT COLLEGES CUT-OFFS
2.VIEW THE CALENDAR OF EVENTS
3.KNOW UR SEAT
2
 particulars                                        date
 start of registration and choice filling          june 16th,10am
 commencement of choice filling for AAT            june 22nd
 seat allocation Round 1                           june 27th
 Round 1-document verification and seat acceptancey june 28th-july2nd
 Round 2-document verification and acceptance
 or withdraw of seat                               july4th-july5th
 Round 3-document verification and acceptance
 or withdraw of seat                               july7th-july8th
 Round 4-document verification or
  withdraw of seat                                 july10th-july11th2do u want
to continue
 1 to continue1
1.IIT COLLEGES CUT-OFFS
2.VIEW THE CALENDAR OF EVENTS
3.KNOW UR SEAT
3
do u want to continue
 1 to continue1
which college you want to join
```

Fig 5.7

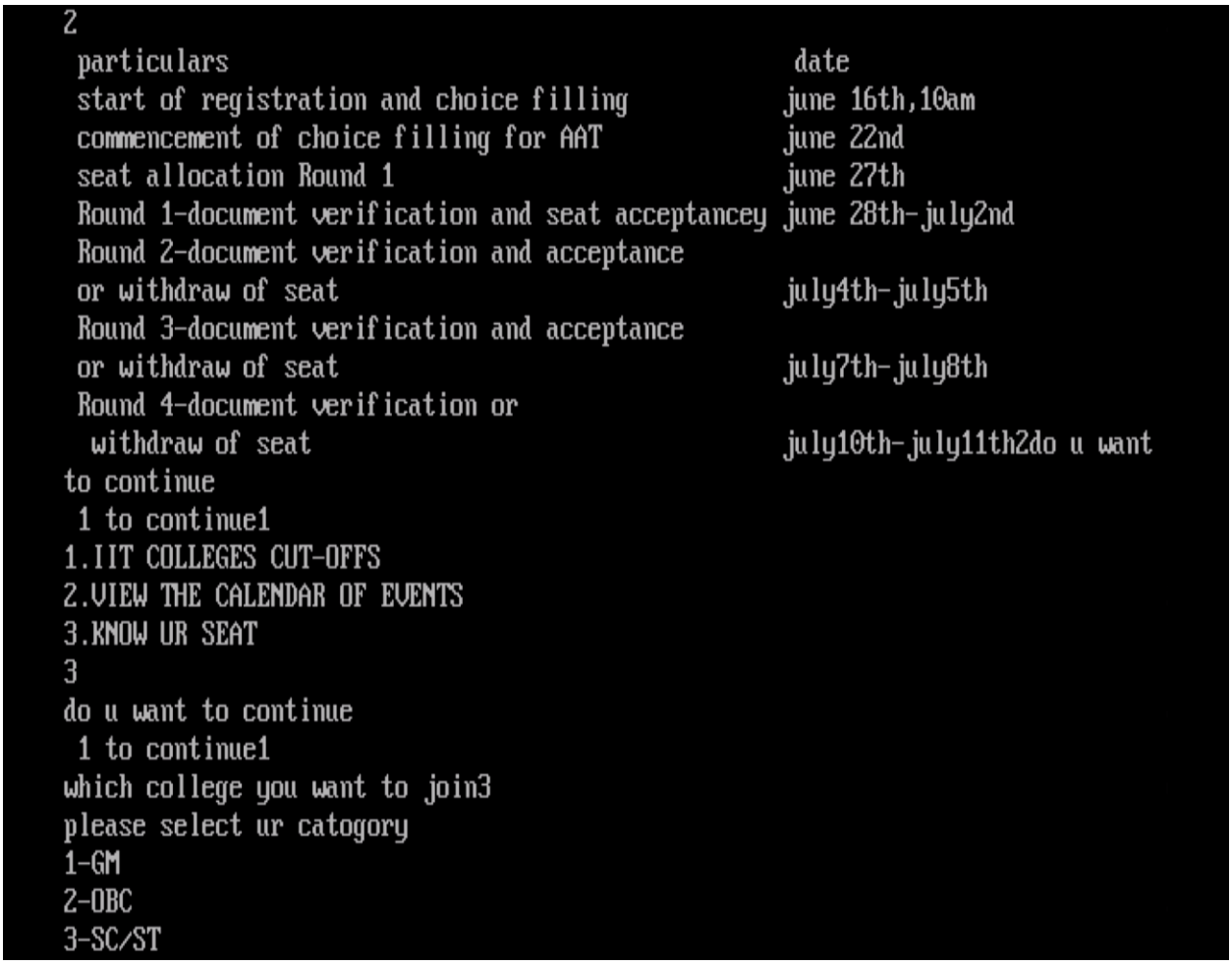
2
particulars date
start of registration and choice filling june 16th,10am
commencement of choice filling for AAT june 22nd
seat allocation Round 1 june 27th
Round 1-document verification and seat acceptancey june 28th-july2nd
Round 2-document verification and acceptance
or withdraw of seat july4th-july5th
Round 3-document verification and acceptance
or withdraw of seat july7th-july8th
Round 4-document verification or
withdraw of seat july10th-july11th2do u want
to continue
1 to continue1
1.IIT COLLEGES CUT-OFFS
2.VIEW THE CALENDAR OF EVENTS
3.KNOW UR SEAT
3
do u want to continue
1 to continue1
which college you want to join3
please select ur catogory
1-GM
2-OBC
3-SC/ST

Fig 5.8

```
 particulars                                          date
 start of registration and choice filling            june 16th,10am
 commencement of choice filling for AAT              june 22nd
 seat allocation Round 1                             june 27th
 Round 1-document verification and seat acceptancey  june 28th-july2nd
 Round 2-document verification and acceptance
 or withdraw of seat                                 july4th-july5th
 Round 3-document verification and acceptance
 or withdraw of seat                                 july7th-july8th
 Round 4-document verification or
  withdraw of seat                                   july10th-july11th2do u want
to continue
 1 to continue1
1.IIT COLLEGES CUT-OFFS
2.VIEW THE CALENDAR OF EVENTS
3.KNOW UR SEAT
3
do u want to continue
 1 to continue1
which college you want to join3
please select ur catogory
1-GM
2-OBC
3-SC/ST1
please enter ur rank
```

Fig 5.9

```
 start of registration and choice filling           june 16th,10am
 commencement of choice filling for AAT             june 22nd
 seat allocation Round 1                            june 27th
 Round 1-document verification and seat acceptancey june 28th-july2nd
 Round 2-document verification and acceptance
 or withdraw of seat                                july4th-july5th
 Round 3-document verification and acceptance
 or withdraw of seat                                july7th-july8th
 Round 4-document verification or
  withdraw of seat                                  july10th-july11th2do u want
to continue
 1 to continue1
1.IIT COLLEGES CUT-OFFS
2.VIEW THE CALENDAR OF EVENTS
3.KNOW UR SEAT
3
do u want to continue
 1 to continue1
which college you want to join3
please select ur catogory
1-GM
2-OBC
3-SC/ST1
please enter ur rank300
in IIT madras the seat is not alloted
```

Fig 5.10

```
 commencement of choice filling for AAT              june 22nd
 seat allocation Round 1                             june 27th
 Round 1-document verification and seat acceptancey  june 28th-july2nd
 Round 2-document verification and acceptance
 or withdraw of seat                                 july4th-july5th
 Round 3-document verification and acceptance
 or withdraw of seat                                 july7th-july8th
 Round 4-document verification or
  withdraw of seat                                   july10th-july11th2do u want
to continue
 1 to continue1
1.IIT COLLEGES CUT-OFFS
2.VIEW THE CALENDAR OF EVENTS
3.KNOW UR SEAT
3
do u want to continue
 1 to continue1
which college you want to join
3
please select ur catogory
1-GM
2-OBC
3-SC/ST2
please enter ur rank200
in IIT madras in obc category the seat is alloted
```

Fig 5.11

```
 start of registration and choice filling           june 16th,10am
 commencement of choice filling for AAT             june 22nd
 seat allocation Round 1                            june 27th
 Round 1-document verification and seat acceptancey june 28th-july2nd
 Round 2-document verification and acceptance
 or withdraw of seat                                july4th-july5th
 Round 3-document verification and acceptance
 or withdraw of seat                                july7th-july8th
 Round 4-document verification or
  withdraw of seat                                  july10th-july11th2do u want
to continue
 1 to continue1
1.IIT COLLEGES CUT-OFFS
2.VIEW THE CALENDAR OF EVENTS
3.KNOW UR SEAT
3
do u want to continue
 1 to continue1
which college you want to join3
please select ur catogory
1-GM
2-OBC
3-SC/ST3
please enter ur rank400
 in IIT madrasthe seat is not alloted
```

Fig 5.12

CHAPTER 6

CONCLUSION

This application deals with the project of IIT seat allotment in IIT colleges. This program is implemented without errors. This program can be used to know your rank cutoff has a seat in your category and the college you preferred. This project has helped me gain knowledge about how the application runs and behind screen flow of program. This application helps students to comfortably know their seat is there or not in their preferred college using this application. I have learned many things about data structures especially linked list through this application.

I thank my reviewer Ms. Uma for helping me to complete this project by correcting the errors in application and giving me the knowledge about this application. For giving this opportunity I heartly thank NEW HORIZON COLLEGE OF ENGINEERING and computer science department.

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