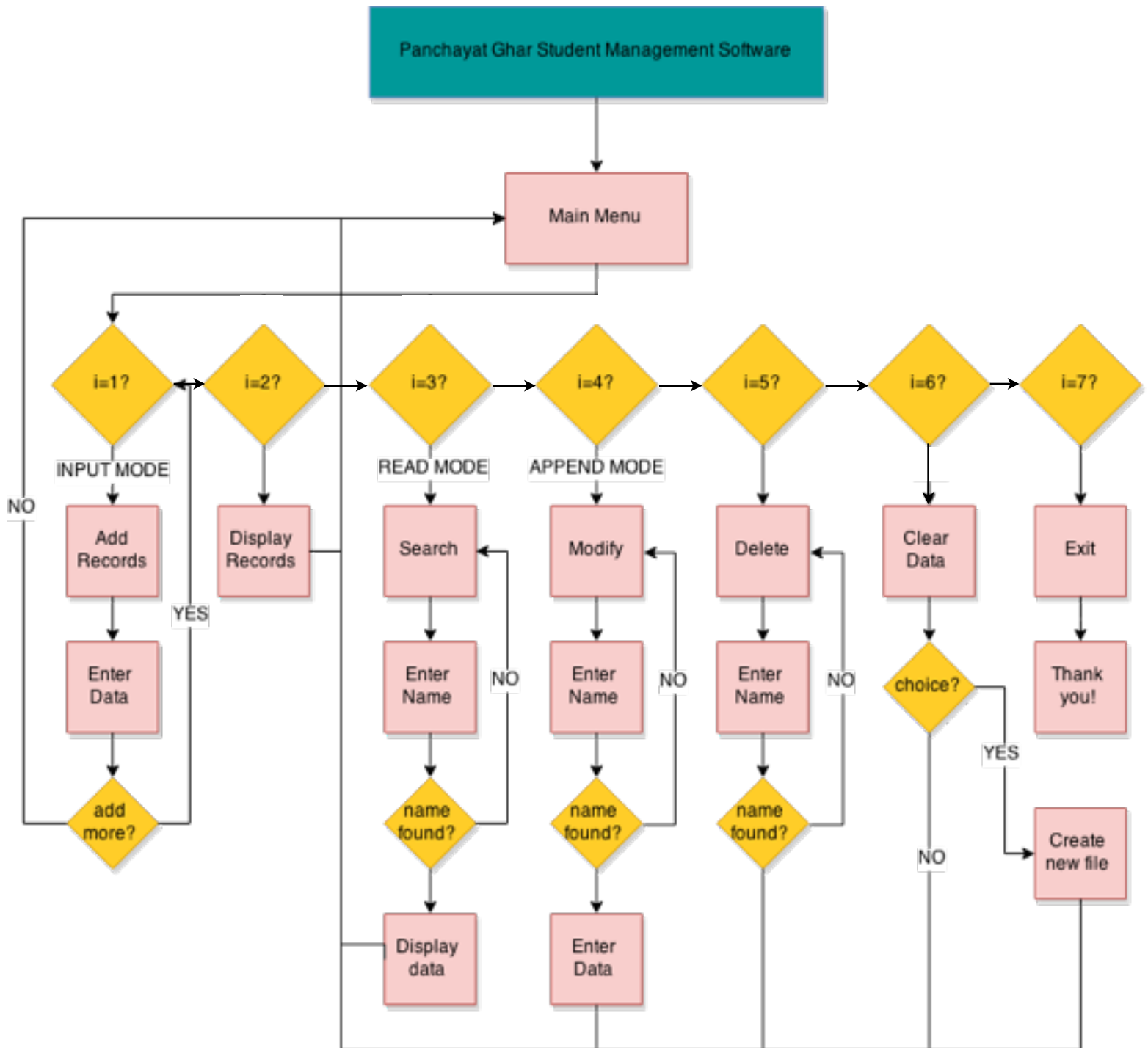


Panchayat Ghar Student Management System

Simplified flowchart of the main functions of the program



Techniques Used

Class and Methods

- Classes contain methods that form main modules of the program
- Individual methods within the class have specific functions and pass values, by value and reference, among each other to accomplish the task at hand.

Databases

- The file is using PrintWriter, FileWriter and FileReader functions of java
- The list of students and subjects is entered by the user manually and saved in a .dbf file

Conditional Statements

- Do-while loops, for loops, while loops are used extensively over the course of the program to provide searching functions, adding data, menu running etc.
- The use of boolean logic is also prevalent in the program in the form of conditional statements and exit controls.

Library Functions

- Functions are using throws IOException to catch and handle errors.
- Library functions such as BufferedReader, FileWriter, PrintWriter, equals and switch-case are implemented to carry out some tasks

Methods used in program

The following methods are used in the program:

Method Name	Method's Use
void main()	Function of this method is to display a menu listing the functions available in this solution. This method will call all other methods over the course of the program
void write()	The method will add student attributes (such as name, school number, standard etc) to the .dbf file. By accepting this function, a new file would be made
void append()	The method will add student attributes (such as name, school number, standard etc) to the .txt file. By accepting this function only student will be added and the original file is preserved
void read()	This method will display all student information available in the system
void Search()	This method will traverse through the data to find specific student information and display it
void modify()	This method will modify data about a specific student
void Delete()	This method will allow the removal of students from the data
void replace(String Temp, String Ori)	This method replaces the temporary file with original file

The following files are used as references for the database of students:

File Name	File's use
studentRecords.txt	The purpose of this file is to save the data that is manually entered by the teachers. It will save the information line by line for each student. All information is read from this file.

Tests to check performance

The program will need to be tested for error and the first step will be to compile it and check for any syntax errors through the BlueJ Integrated Development Environment (IDE) debugging tool. This debugger will identify all syntax based errors present in the program and will not necessarily find the logical errors present. If any errors are found, they are fixed within the IDE itself.

The program will also need to be checked for logical errors through inputs of certain values; Below is a table of this trial:

Action to test	Method/Desired Result
User is able to access main menu	Enter random number not in the range of $1 \leq x \leq 7$ to check if the program is handling incorrectly entered values by displaying error message and showing menu again
User is able to make a new file	When evoking the write() function, is the program deleting all pre-existing information and making a new .txt file and then prompting to accept new information.
User is able to add single or multiple students to the database	Enter function and enter data in this function to see if the data is being successfully being added to the file and if all information is correctly placed.
User is able to view all information present in the .txt file	Enter function to see if all the information in the file being printed in the correct order and with the right students.
User is able to find specific students in the file	Search a random value and see if program is returning a error statement and prompting to try again. Also search a student as see if the information relating to the student is displayed correctly.
User is able to modify individual items in the file	Evoke function and see if specific data changed in a student is reflected in the data file
User is able to remove items from the file	Enter name of student to be removed and see if the all student data is removed from the data file