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Stage A – Analysis

Peng Fei Wang

Stage A – Analysis

A1 Analysing the Problem

Description of Problem

In order to obtain an Ontario Secondary School Diploma (OSSD), students must complete a variety of courses through their 4 years in high school. Classes are structured into 75 minute blocks, where during this time the teacher will teach students material necessary to obtain the credit for the course. In order for students to apply the knowledge learned in class they are given homework. Practice questions to be done at home to solidify their understanding of the material taught. In order to quantify how well students are learning in the class, students are given evaluations in the form of quizzes, tests and assignments. All of which will be used to formulate a course mark to be included in each students transcript. The course marks are used by universities and colleges to judge whether or not a student will be accepted to their particular program. As a result completing homework and preparing for evaluations are essential for a student to succeed in high school. This becomes difficult when a student will have several different classes in a day and must remember information such as due date, homework questions, evaluation dates, etc.

With a high school student as a client, my goal is to create an organiser that will help students keep track of their homework, quiz, test, and assignments. The student would be able to enter this information into specific days with the ability to go back to read what was recorded on each particular day. With prompts available for quizzes, tests, and assignments due within a span of 7 days.

Analysis of Problem

After meeting with my client, the functions of the program were discussed. After deciding the client would like an electronic agenda made in order to reduce paper usage, and extra space.

Transcript of Interview:

Q: Should tasks be assigned to the date assigned or due date?

A: the tasks should be assigned to the date assigned but still link the due date to the task.

Q: What Extra functions would you like in the program?

A: I would like the various tasks to be split into categories. With each task connected to a due date, and have to program create a list based on the due date so I can prioritize what tasks I must complete.

Q: How would you like a list of tasks to be sorted?

A: Both by due date and by date assigned.

Q: What categories would you like the task to be split into?

A: By homework, assignments, quiz, and test.

Current Systems

The most widely used solution to organising school related activities is the use of specially formatted notebooks named agendas with rectangular boxes under each school day for students to jot down information. These agendas are sold by the school to students in the start of every school year. However due to causes such as reduction of paper use, the agendas sold are becoming very small (each box is only 5 by 8 centimetre squared). This combined with increased amounts of homework, quizzes, tests, and assignments as students progressed in school, leads to insignificant space in the agenda.

To keep track of these school related activities, students rely on agendas provided for sale by the school in the form of a palm sized notebook. In order to reduce paper usage, the sizes of agendas have shrink resulting in each daily section shrinking to only 5*8cm box. This in conjunction to the increase in homework load and evaluations as students move onto higher grades such as grade 12, there simply isn't enough space to record everything students believe to be important in the space provided.

Input, Output:

The input required by the program include: the date, the day the user wish to add homework/quiz/test/assignment to, information concerning the homework/quiz/test/assignment in question such as due date. Input data always either allows the user to go back or asks for confirmation of inputs. If that fails the user can always delete what was inputted and re-input the data.

There are several outputs associated with this program. The program can output what the user has previously stored in the program, a list of upcoming evaluations in the next 7 days, a list of homework due in the next seven days or a list of evaluations and homework that occurs or is due that day.

Systematic analysis

Figure A1- Data Flow Diagram for Reading and Writing to file

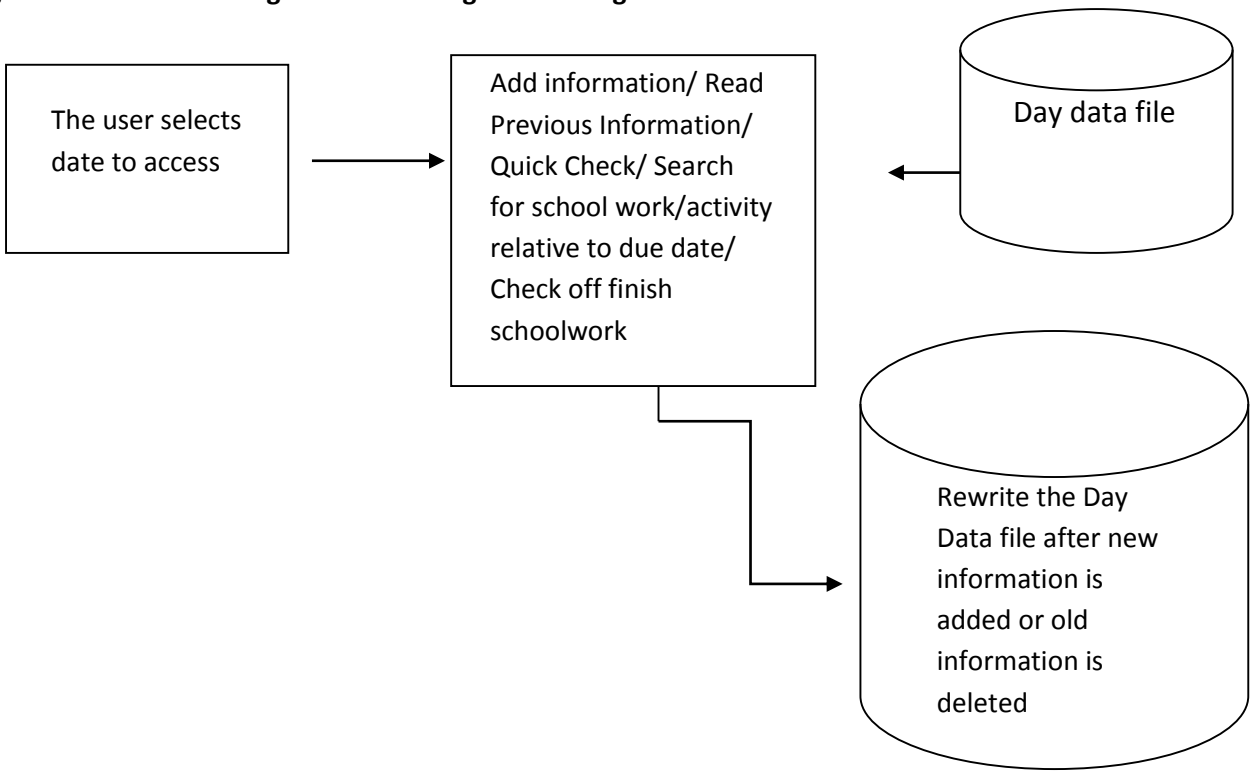


Figure A2 – System Flow Chart for adding information

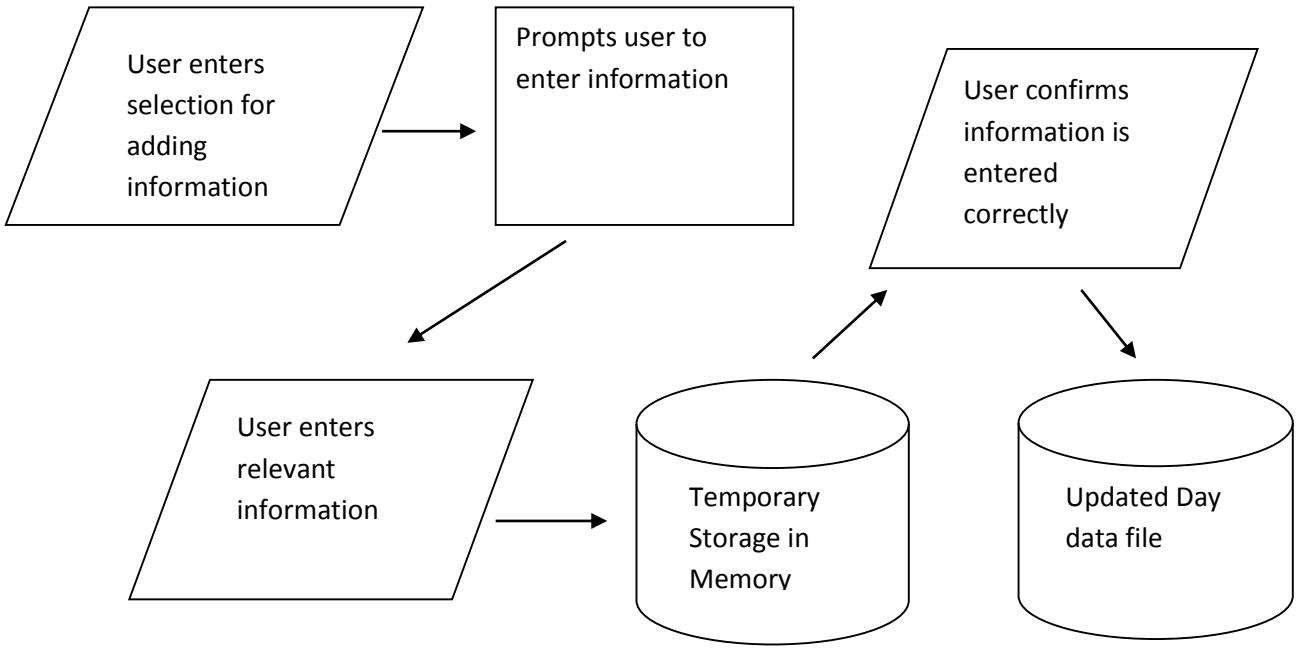


Figure A3 – System Flow Chart for Searching for school work/activities

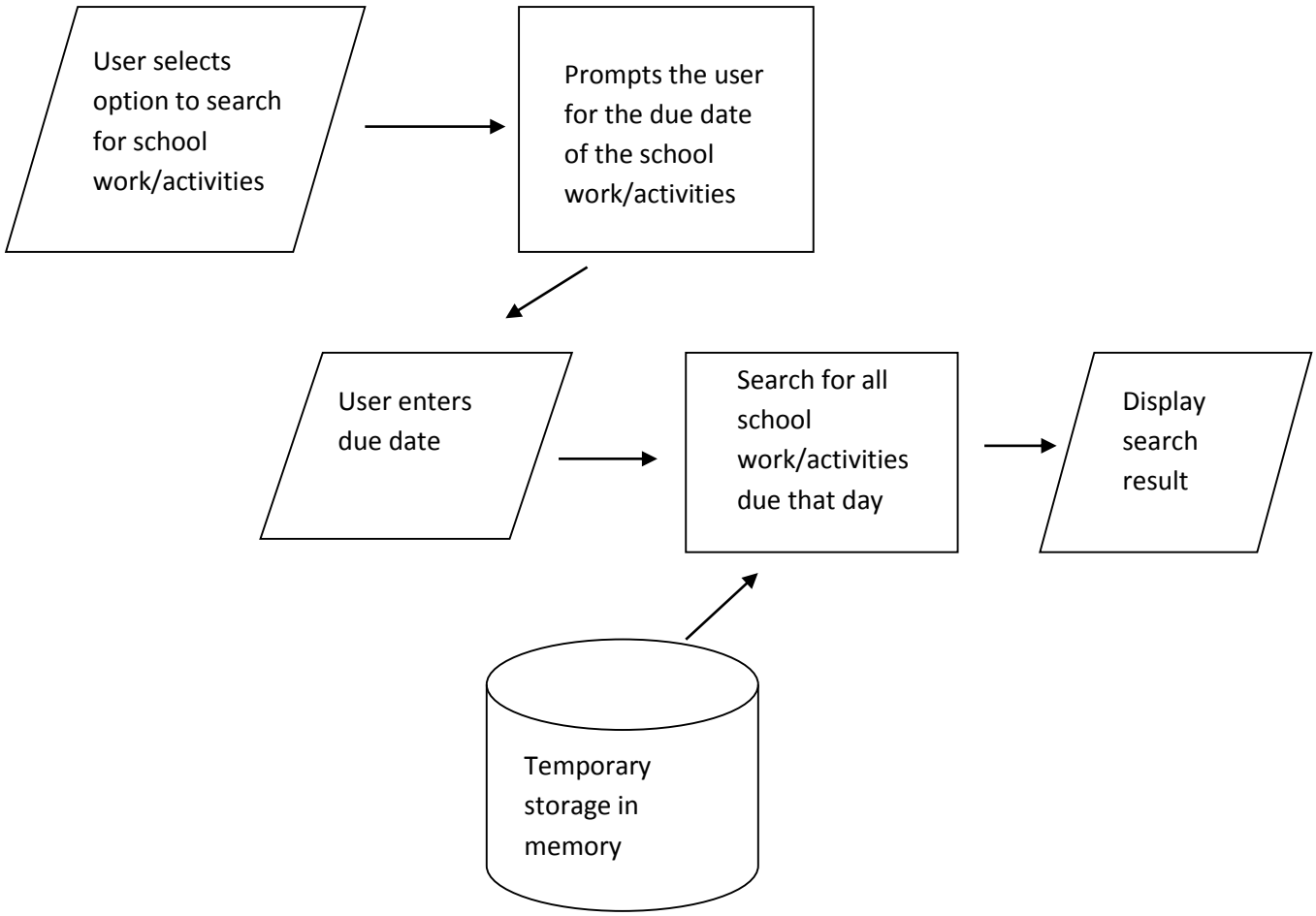


Figure A4 System flow chart for displaying data

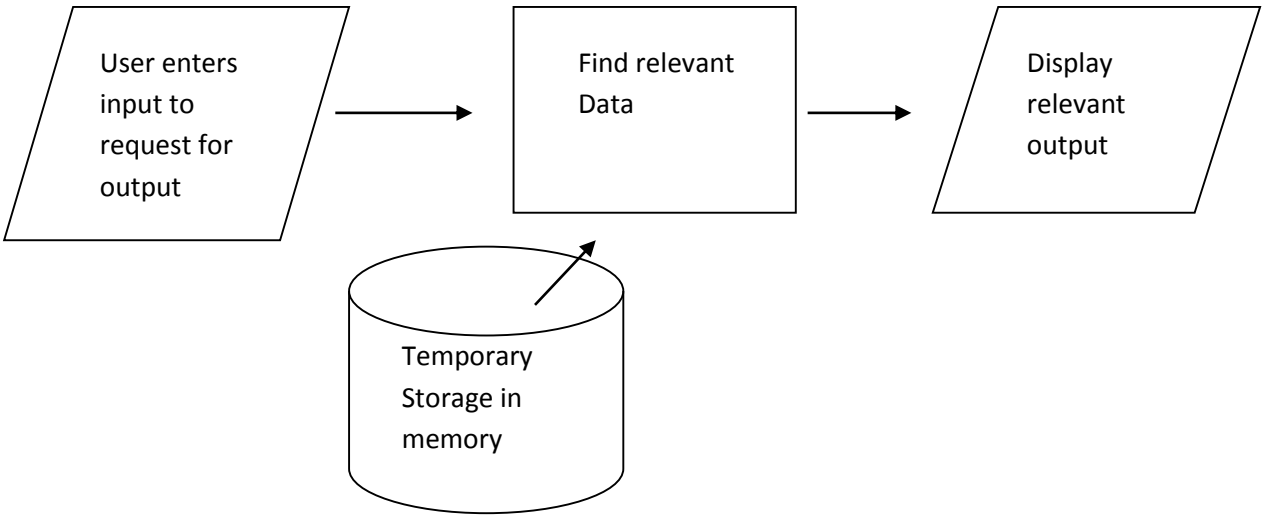
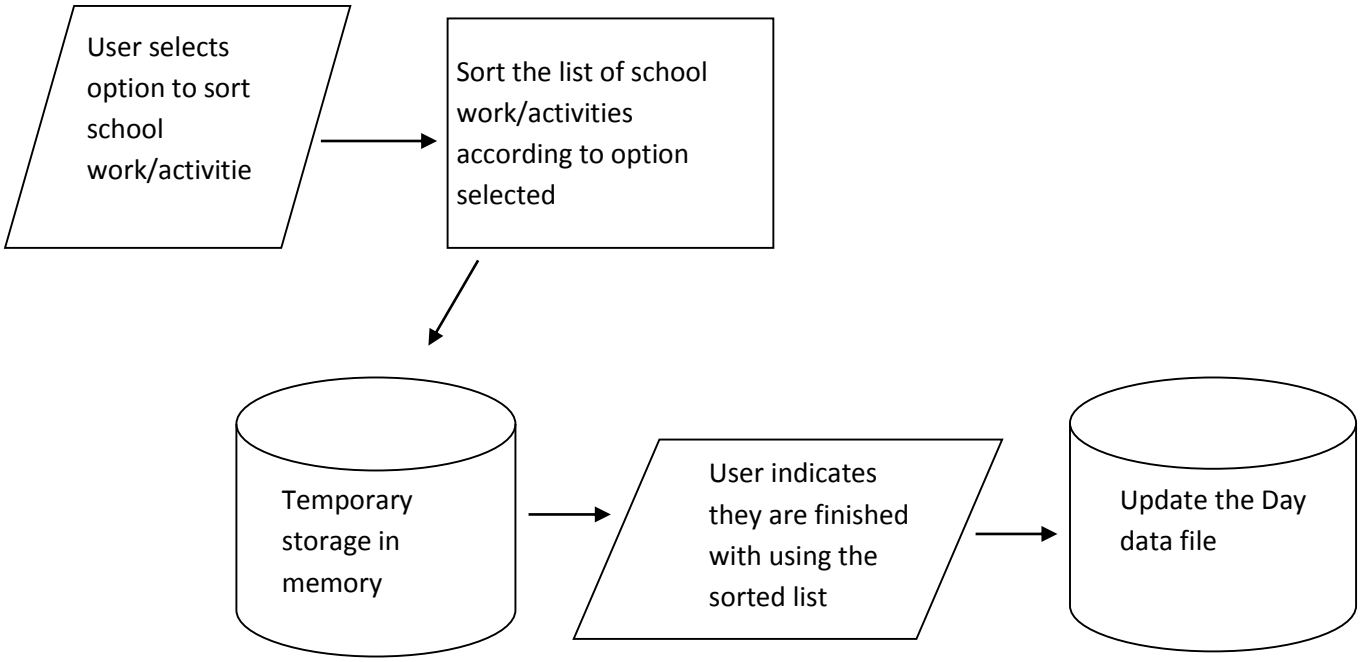


Figure A5 System flow chart for sorting school work/activities



A2 Criteria for Success

Outline of Proposed Solution

1. Store information on school work/activity in the day the school work/activity was assigned.
2. Allow user to access information entered above
3. Allow user to check off finished school work
4. Allow user to quickly check what evaluations and school work that are due in the next 7 days
5. Store all information in data files.

Limitations/Requirements

Requirements:

- JRE(version 6)

- Windows XP/Vista/7/8

-Input device (keyboard)

-Output device (LCD monitor)

Restrictions:

- Calendar is restricted to 2013
- The user must know the current date
- Once a school work is marked finished it cannot be unmarked
- Information entered must be categorized as either homework, quiz, test, or assignment

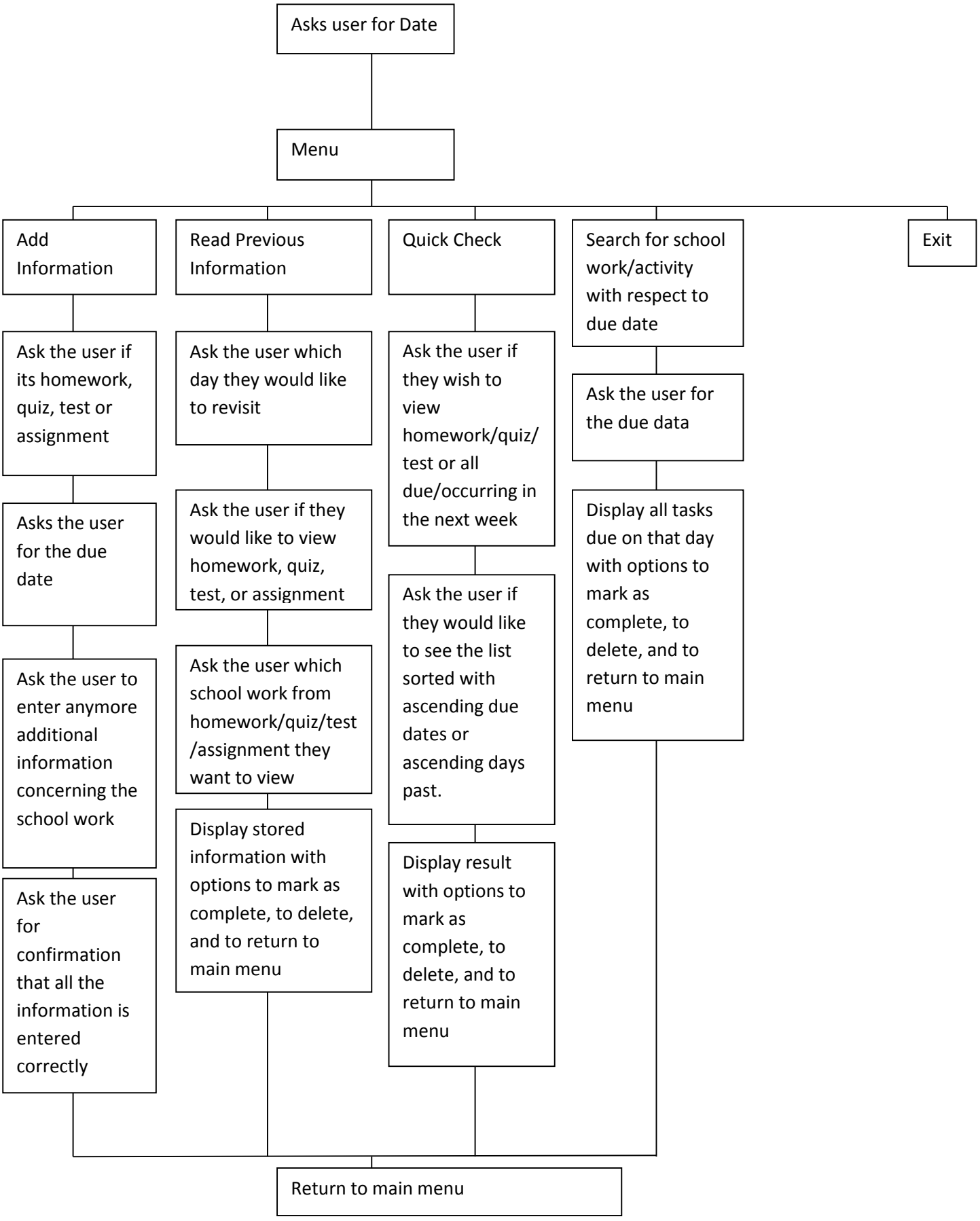
Goals:

- User can input as much information as needed for each school work/activity
- Information can be deleted
- Information can be viewed at a later time
- Information can be sorted relative to both date assigned and date due.
- Information can be searched relative to due date
- Homework and assignments can be marked as complete
- List of school work/activities due in the next 7 days can be generated

Objectives:

- Have indicators such as “success” when an action is performed
- When inappropriate data is inputted the program will re-prompt the user for appropriate data.
- Inappropriate input by user will not crash the program
- Actions aside from exit will always loop back to the main menu.

A3: Prototype Solution



Please Select the Current Month: 1. January 2. February 3. March 4. April 5. May 6. June 7. July 8. August 9. September 10. October 11. November 12. December Please enter your choice: 11	**Description:** This is the first page the user will be introduced to. Here the user will input the current month using the numbers 1-12 each representing a separate month. Invalid inputs (ie string, numbers other than 1-12, etc) will lead to a re-prompt for appropriate data.
Please Enter the Present Day of the Month: 18	**Description:** In this page the user will enter the day of the month with numbers 1-31. Inappropriate inputs will lead to re-prompts.
Main Menu ---------- 1. Add information 2. View Information 3. Quick Check 4. Search for work/activities with respect to due date 5. Check off completed school work 6. Exit Please Enter an Option: 1	**Description:** This is the main menu where the user will select which activity they would like to select. The numbers 1-6 will be accepted as input for each respective action, with inappropriate input resulting in re-prompts.

Add Information: Which category does the new school work/activity fall under? 1. Homework 2. Assignment 3. Quiz 4. Test Please enter your choice: 1	**Description:** In option 1, the user will be greeted first by a categorizer page. Where the user must select which category the new school work/activity falls under. Using the numbers 1-4 to signify choices, with inappropriate inputs leading to re-prompts.
New Homework Is the homework due? 1. Tomorrow 2. The day after tomorrow 3. Other Please select the appropriate choice: 1	**Description**: After the category has been established options will be presented regarding the due date. Numbers from 1-3 will be used to signify the choices, with inappropriate inputs leading to re-prompts. Choice number 3 will result in pages similar to the first 2 which will ask the user to specify the appropriate due date.
Please enter information concerning this homework: Page 218 #2-8 Math	**Description**: Here the user will enter all the information they feel is relevant to the homework.

Confirm new Homework: Due Date: November 19 Page 218 #2-8 Math Confirm entry? (y/n) y	**Description:** Here the user is asked for confirmation of what was entered. The letters y would denote yes and n would denote no. Answer of yes would result in the new homework being recorded while an answer of no will result in the entry being disregarded. Inappropriate input will result in a re-prompt. Confirmation will to lead to return to main menu
Which Day would you like to revisit? 1. Today 2. Yesterday 3. The day before Yesterday 4. Other Please enter your choice: 1	**Description:** When the user choices option 2 they are greeted with this page. Where the user is asked which page they would like to revisit
Which category do you wish to view? 1. Homework 2. Assignment 3. Quiz 4. Test 5. All Please enter your choice: 1	**Description:** Here the user is asked which category they would like to view.

Homework on November 18 2013 1. Page 218 #2-8 Math Due November 19 2. Mark all as Finished 3. Delete all 4. Return to Main Menu Please select one of the options above: 4	**Description:** Here the user is able to see all the information concerning each homework that they have entered before. The user can select a homework to mark it off as complete or to delete it, or the user can return to the main menu.
Quick Check: 1. All homework due in the next 7 days 2. All assignments due in the next 7 days 3. All quizzes occurring in the next 7 days 4. All tests occurring in the next 7 days 5. Everything due/occurring in the next 7 days Please select one of the options above: 1	**Description:** In option 3 the user is able to check for school work/evaluations due/happening in the next 7 days. The user first must choose which category they would like to view, using the numbers 1-5 to signify the choices.
Homework due in the next 7 days: 1. Page 218 #2-8 Math Due November 19 Unfinished 2. Return to Main Menu Please select one of the options above: 2	**Description:** The user is presented with all the homework due in the next 7 days. With the words Finished next to homework already checked off and Unfinished for homework that's not marked as complete. The user is able to select a homework to mark as complete or delete it, or the user can return to the main menu. User comment: Can the Finished and Unfinished homework and assignments be placed into separate categories?

Search for school work/activity in respect to due date: Which day is the school work/activity due? 1. Tomorrow 2. The day after tomorrow 3. Other Please select one of the options above: 1	**Description:** When option 3 is selected the user is asked for the day that the school work/activity is due. When option 3 is selected the program will bring to user to 2 pages similar to the first 2 pages of the program to ask for a specific date. User comment: Can the school work/activity be split into categories like the actions?
School work/activity due on November 19: 1. Page 12 #2-8 Math Unfinished 2. Return to Main Menu Please select on the options above: 2	**Description:** The user is presented with all the school work/activities due on the day selected. Homework and assignments will be marked as Finished or Unfinished depending on completion. The user is able to select homework to mark as complete or to delete it and the option to return to the main menu.

Revisions:

- Have the finished and unfinished homework and assignments outputted under separate titles
- Have options to split the output of searching by due date by the categories: homework, quiz, test, and assignment.

Stage B – Detailed Design

Peng Fei Wang

ICS 4U7 Dossier Stage B – Detailed Design

B1 Data Structures:

Storing Information for an individual day

A class called Day is created to store the information concerning assignments stored previously by the user. Different variables will be used to store information concerning homework, quiz, test, assignment, the corresponding due date and the date assigned. All information concerning a particular day will be stored in this object.

```
public class Day
{
	private String [][] homework = new String [10][2];
	private String [][] quiz = new String[4][2];
	private String [][] test = new String[4][2];
	private String [][] assignment = new String[4][2];
	private int [][] duedatehomework = new int[10][2];
	private int [][] duedatequiz = new int[4][2];
	private int [][] duedatetest = new int[4][2];
	private int [][] duedateassignment = new int[4][2];
	private int [][] assigneddate = new int[2];
	methods…
}
```

Strings are used for homework, quiz, test, and assignment so the user is able to input any information that they feel would be beneficial to reminding them of what occurred the availability of letters is essential for this to occur. They are 2 dimensional arrays because each homework, quiz, test, and assignment will also need to be identified as finished or not finished. The due dates and assigned dates for each particular school work are assigned to 2 dimensional integer arrays with a size of [x][2] because while both month and day are mutually inclusive to date they are mutually exclusive of each other so by separating them in this fashion the date can be easily determined. As opposed to using only a single integer, since it would require more complicated processes to separate a date entered in formats such as dd/mm, or recording only the days past starting from January first as opposed to just separating the month and day into distinct integers. They are organized into 2 dimensional arrays to correspond to the various number of homework/quiz/test/assignment. The date must be in the form of a number as opposed to a String because the dates are compared mathematically for certain functions so it would be illogical to store the information in String only to have to covert them again in the program.

Storing Multiple Days:

The Day objects are grouped according to which month the day object resides, 3 different classes will be used to differentiate between 28, 30, and 31 day months. The 3 classes will be named TwentyEightDayList, ThirtyDayList, and ThirtyOneDayList. The Day objects will be stored in an array in ascending order of day. This class will also be responsible for inserting each Day object to the appropriate location in the array after the information is obtained from the save file and to return each specific Day object. 12 of these classes will be initialized to encompass the 12 months of the year which will include all the Day objects for the year. These classes will be none static since multiple months will share the same class to store Day objects.

```
public class TwentyEightDayList

{

      private static final int ListLength = 28;
      private Day  [] daylist = new Day [ListLength];
      methods…
}
```

1D Array of Day objects:

00	Day 1 location
01	Day 2 location
02	Day 3 location
↓	↓
26	Day 27 location
27	Day 28 location

A 1 dimensional array is used to store the Day objects grouped into each month because the number of Day object in each month is constant so dynamic lists such as linked lists would not be required but the number of days of each month is different from each other so a 2 dimensional array will have empty references that are not desired. While having 12 different classes to group the days it will still be relatively simple to differentiate between the months.

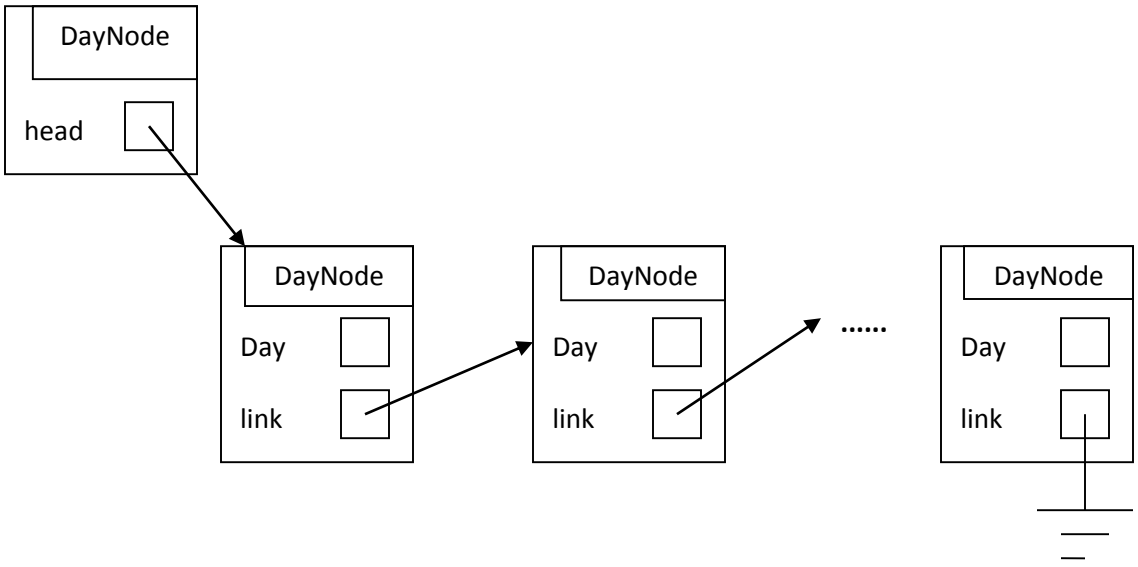
*Since the number of Days are constant Day objects cannot be deleted or added to the array, the contents of the Day objects such as test, homework, etc can be set to null but the Day object will always exist in the 1 dimensional array.

Storing Day objects that are within 7 days of the current date

In order to display to the user homework/test/quiz/assignment due in the next 7 days a list must be made to contain the individual Day objects that meet the previous stated criteria. This list must be dynamic since the number of Day objects that will meet the criteria is not constant and will be different from user to user a dynamic storage system is needed. The class DayNode is an object that operates as a node with a Day object acting as the information with a next variable linking to the next DayNode with a different Day object that also fits the criteria. The DayNode objects are linked in the DayQueue class as a linked list that could be sorted and displayed to the user.

```
public class DayNode
{
        Day info;
        DayNode link;
}

public class DayQueue
{
        DayNode head;
}
```



Reading and Writing to Save File

All the information entered by the user and stored in a Day object will be stored in an external storage text file to preserve the data for future use. The data will be saved when the user exists the program into a text file. When the program is initialized 365 Day objects will be initialized and the corresponding information from the text files will be transferred to the various Day objects.

Saved File Format:

<Assigned Month>
<Assigned Day>
<Homework 1>
<State of Homework1>
<Homework 1 Due Month>
<Homework 1 Due Day>
<Homework 2>
<State of Homework2>
<Homework 2 Due Month>
<Homework 2 Due Day>
<Homework 3>
<State of Homework3>
<Homework 3 Due Month>
<Homework 3 Due Day>
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<Homework 9>
<State of Homework9>

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<Homework 9 Due Day>
<Homework 10>
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<Homework 10 Due Day>
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<Quiz 4 Due Day>
<Test 1>
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<Test 1 Due Month>
<Test 1 Due Day>
<Test 2>
<State of Test 2>
<Test 2 Due Month>
<Test 2 Due Day>

<Test 3>
<State of Test 3>
<Test 3 Due Month>
<Test 3 Due Day>
<Test 4>
<State of Test 4>
<Test 4 Due Month>
<Test 4 Due Day>

Each Day object's data will be stored in the above format; no entries will result in a blank line. Thus each Day object will fill a constant number of lines; this will be how the program will distinguish each Day object saved in the same file. Due to the constant number of days in a month the amount of lines will be a constant value, when this value has been reached the program will know that the program has ended. Since the data is only updated when the user exists the program, exiting with the use of means other than the exit option in the program will result in loss of data.

B2 Algorithms

Day class

Accessor:

```
getHomeWork(int index) return String
getHomeWorkState(int index) return String
getQuiz(int index) return String
getQuizState(int index) return String
getTest(int index) return String
getQuizState(int index) return String
getAssignement(int index) return String
getAssignementState(int index) return String
getDueDateHomeWork(int index, int dateindex) return int
getDueDateQuiz(int index, int dateindex) return int
getDueDateTest(int index, int dateindex) return int
getDueDateAssignment(int index, int dateindex) return int
getAssignedDate(int dateindex) return int
```

Mutator:

```
setHomeWork(int index, String input)
setHomeWorkState(int index,  String input)
setQuiz(int index, String input)
setQuizState(int index, String input)
setTest(int index, String input)
setTestState(int index, String input)
setAssignement(int index)
setAssignementState(int index, String input)
```

```
setDueDateHomeWork(int index, int duemonth, int dueday, String input)
setDueDateQuiz(int index, int duemonth, int dueday, String input)
setDueDateTest(int index, int duemonth, int dueday, String input)
setDueDateAssignment(int index, int duemonth, int dueday, String input)
setAssignedDate(int dateindex, String input)
toStringHomework(int index)
toStringQuiz(int index)
toStringTest(int index)
toStringAssignement(int index)
```

*The information below applies to all toString methods, differing types of schoolwork will have different variables but the basic function is the same. The example below is for the toStringHomeWork(int index) function.

Description: Outputs information concerning a specific schoolwork including date due and completion.

Parameter: int index

Return type: void

Preconditions: Information concerning the school must have been previously inputted by user.

Post conditions:

Algorithm:

```
Print (this.getHomeWork(index) + this.getDueDateHomeWork(index, 0)+
this.getDueDateHomeWork(index, 1) + this.getHomeWorkStatus(index))
```

TwentyEightDayList Class

Accessor:

```
getDayList(int index) return Day
```

Mutator:

```
setDayList(int index, Day newDay)
```

ThirtyDayList Class

Accessor:

```
getDayList(int index) return Day
```

Mutator:

```
setDayList(int index, Day newDay)
```

ThirtyOneDayList Class

Accessor:

```
getDayList(int index) return Day
```

Mutator:

```
setDayList(int index, Day newDay)
```

DayNode Class

Accessor:

```
getinfo() return Day
getLink() return DayNode
Mutator:
setinfo(Day day)
setLink(DayNode newnode)
```

DayQueue Class

Append End
Description: Takes a DayNode and connects it to the end of the linked list

Parameter: DayNode newnode

Return type: void

Preconditions:

Post conditions:

Algorithm:

```
For DayNode temp = head; temp!= null; temp = temp.getLink()
        If temp.getLink() = null
                temp.setLink(newnode)
        end if
if head = null
        head = newnode
end if
```

Sort

Description: Sorts the nodes in the linked list according to either ascending order or descending order of due date.

Parameter: Boolean ascending

Return type: void

Preconditions: A linked list of DayNodes exists

Post conditions: The linked list is sorted

Algorithm:

```
Bubble sort comparing due date of adjacent nodes
The bubble sort is reversed goring from back to front when sorting in
ascending order
```

Main Menu Class

Description: This class will function as the main menu of the program allowing the user to choose different operations.

Parameter:

Return type: void

Preconditions:

Post conditions:

Algorithm:

```
While int loop = 0
      loop always = 0
      Print "choices of process the user would want to use"
      Get from the user the choice of process
      If int choice = particular numerical choice
            Carry out the task
      End if
End loop
```

DayManipulation Class

Adding information

Description: Takes information inputted by the user and edits the appropriate Day class to reflect the new information.

Parameter: String schoolwork, String newinfo, int duemonth, int dueday, int assignedmonth, int assignedday

Return type: void

Preconditions: A spot for the new information must be available within the Day object

Post conditions:

Algorithm:

* Example below is for the case that the month is January and the information entered was classified as homework. In instances of other months or other school work such as quiz, the algorithm will be the same but different variables will be used.

```
If schoolwork equals homework
      If assignedmonth equals to 1
            For int a = 0; January.getDayList(assignedday-1).getHomeWork(a)
not equal null && a < 10; a++
                  int count ++;
            if count does not equal to 9
                  January.getDayList(assignedday-1).setHomeWork(count-1,
newinfo);
                  January.getDayList(assignedday-1).setDueDateHomeWork(count-
1, duemonth, dueday);
                  January.getDayList(assignedday-1).setHomeWorkState(count-1,
"incomplete") ;
      End if
End if
```

Deleting information

Description: Deletes information in Day objects to reflect the appropriate changes.

Parameter: String schoolwork, int index, int assignedmonth, int assignedday

Return type: void

Preconditions:

Post conditions:

Algorithm:

* Example below is for the case that the month is January and the information entered was classified as homework. In instances of other months or other school work such as quiz, the algorithm will be the same but different variables will be used.

```
If schoolwork equals homework
      If assignedmonth equals to 1
                  January.getDayList(assignedday-1).setHomeWork(index, null);
      End if
End if
```

Marking a piece of school work as complete

Description: Edits the Day object to reflect that a task has been completed.

Parameter: String schoolwork, int index, int assignedmonth, int assignedday

Return type: void

Preconditions:

Post conditions:

Algorithm:

* Example below is for the case that the month is January and the information entered was classified as homework. In instances of other months or other school work such as quiz, the algorithm will be the same but different variables will be used.

```
If schoolwork equals homework
      If assignedmonth equals to 1
                  January.getDayList(assignedday-1).setHomeWorkState(count-1,
"complete") ;

      End if
End if
```

Displaying stored information about schoolwork assigned on a particular day

Description: Displays stored information about a particular type of school work assigned on a particular day to the screen.

Parameter: String schoolwork, int assignedmonth, int assignedday

Return type: void

Preconditions: There should be saved data about the schoolwork

Post conditions: Information is displayed

Algorithm:

* Example below is for the case that the month is January and the information entered was classified as homework. In instances of other months or other school work such as quiz, the algorithm will be the same but different variables will be used.

```
If schoolwork equals homework
     If assignedmonth equals to 1
          For (int a = 0; January.getDayList(assignedday-
1).getHomeWork (a) != null && a < 10; a increase by 1)
               January.getDayList(assignedday-1).toStringHomeWork(a)
          End for loop
     End if
End if
```

Quick Check

Description: searches through every Day object to see if any of a specific type of schoolwork is due within 7 days of the present date. The Day objects are put into a linked list and returned.

Parameter: String schoolwork, int assignedmonth, int assignedday

Return type: DayQueue

Preconditions: The present date must be known

Post conditions: Creates a linked list of all Day objects with schoolwork due in next 7 days

Algorithm:

* Example below is for the case that the month is January and the information entered was classified as homework. In instances of other months or other school work such as quiz, the algorithm will be the same but different variables will be used.

```
If schoolwork equals homework
            For (int a = 0; a < 31; a ++)

                  For (int b = 0; && b < 10; a ++)
                        If assignedday < 25
                              If (January.getDayList(a).getDueDateHomeWork
(b, 0) = assignedmonth && January.getDayList(a).getDueDateHomeWork (b, 1)
greater equal to assignedday && January.getDayList(a).getDueDateHomeWork (b,
1) smaller equal to assignedday + 7)
                                    Append January.getDayList(a) to end of
DayQueue with method appendEnd() from DayQueue class
                              End if
                        Else
                              If (January.getDayList(a).getDueDateHomeWork
(b, 0) = assignedmonth && January.getDayList(a).getDueDateHomeWork (b, 1)
greater equal to assignedday && January.getDayList(a).getDueDateHomeWork (b,
1) smaller equal to assignedday + (31 - assignedday)
                                    Append January.getDayList(a) to end of
DayQueue with method appendEnd() from DayQueue class
                              End if
                              Else if
(January.getDayList(a).getDueDateHomeWork (b, 0) = assignedmonth+1 &&
January.getDayList(a).getDueDateHomeWork (b, 1) greater equal to 0 &&
January.getDayList(a).getDueDateHomeWork (b, 1) smaller equal to 7 – (31 –
assignedday))
                                    Append January.getDayList(a) to end of
DayQueue with method appendEnd() from DayQueue class
                              End Else If
                        End Else
                  End for loop
            End for loop
End if
```

Due Date Search

Description: searches through every Day object to see if any of a specific type of schoolwork is due on a specific day chosen by the user. The Day objects are put into a linked list and returned.

Parameter: String schoolwork, int duemonth, int dueday

Return type: DayQueue

Preconditions:

Post conditions: Creates a linked list of all Day objects with schoolwork due in the specified day

Algorithm:

* Example below is for the case that the month is January and the information entered was classified as homework. In instances of other months or other school work such as quiz, the algorithm will be the same but different variables will be used.

```
If schoolwork equals homework
            For (int a = 0; a < 31; a ++)

                  For (int b = 0; && b < 10; a ++)

                                 If (January.getDayList(a).getDueDateHomeWork
(b, 0) = duemonth && January.getDayList(a).getDueDateHomeWork (b, 1) =
dueday)
                                       Append January.getDayList(a) to end of
DayQueue with method appendEnd() from DayQueue class

                                 End if
                  End for loop
            End for loop
End if
```

Reading Data from Saved File

Description: Reads the data from the saved file and saves it into Day objects when the program is first started.

Parameter: none

Return type: void

Preconditions: the saved file must exist

Post conditions: The information is transferred to memory

Algorithm:

* Example below is for the case of the month of month is January. In instances of other months the algorithm will be the same but different variables will be used.

```
For (int a = 0; a < 31; a++)
      For (int b = 0; b < number of lines of information for each Day class;
b++)
            January.set[a].set(first type of data in list of
information)(read.nextline());
            Repeate for all information
      End for
End for
```

Writing Data to Saved File

Description: Rewrite the saved files to reflect the changes made by the user when the user decides to exit the program.

Parameter: none

Return type: void

Preconditions:

Post conditions: The saved files are updated

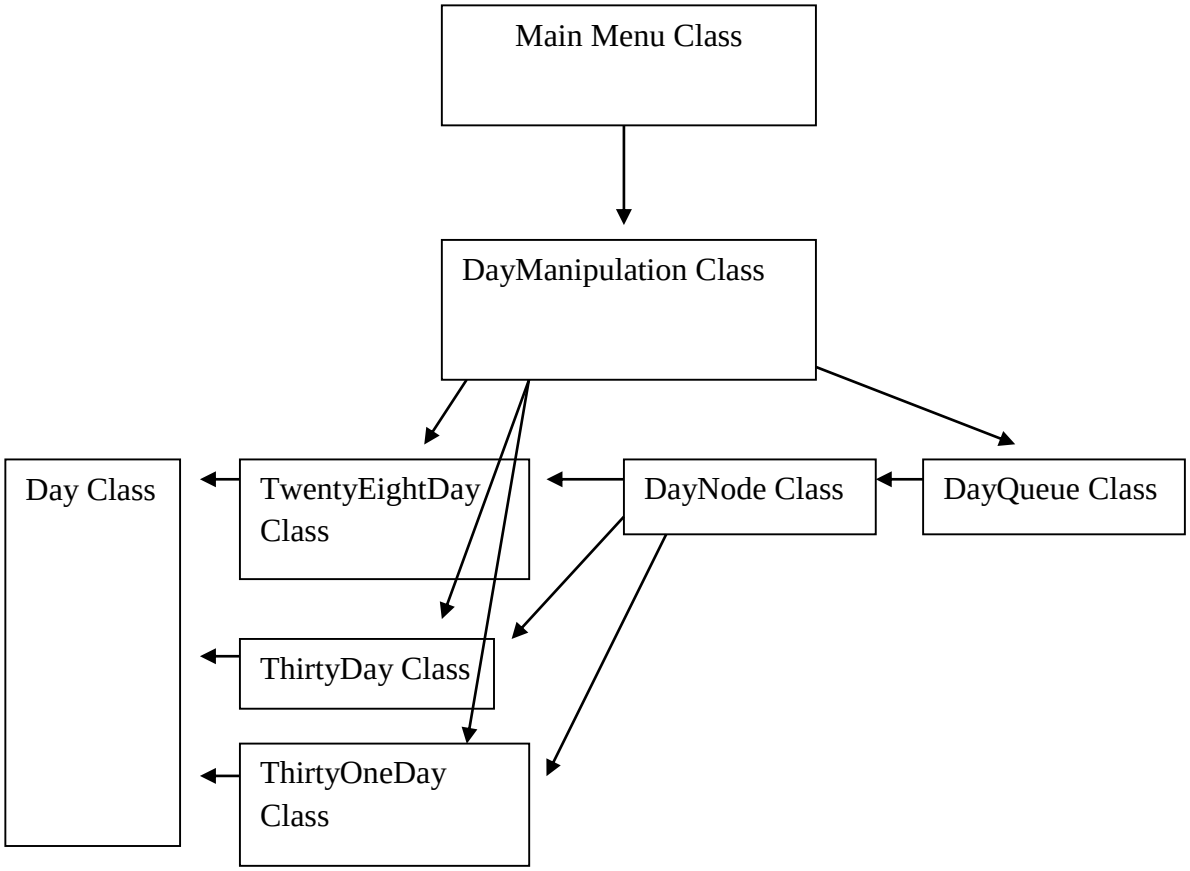
Algorithm:

* Example below is for the case of the month of January. In instances of other months the algorithm will be the same but different variables will be used.

```
For (int a = 0; a < 31; a++)
      For (int b = 0; b < number of lines of information for each Day class;
b++)
            Write line January.set[a].get(first type of data in list of
information);
            Repeate for all information
      End for
End for
```

B3: Modular Organization

*All fields and methods can be found in the previous sections above



The diagram above shows the interactions between the 8 classes. The Day class will be stored in the TwentyEightDay, ThirtyDay, and ThirtyOneDay classes for better organization. These organized month classes will be called by the DayManipulation to directly alter the Day classes that they hold; these classes are also accessed by the DayNode Class in order to create a linked list containing the appropriate Day Classes.

Stage C – Program

Peng Fei Wang

Stage C – Program

C1 Using good programming style

```
import java.io.IOException;
import java.util.*;

/**
 * @author Peng Fei Wang
 * Date finished: Feburary 28th 2013
 * School: Victoria Park CI
 * Computer Used: home laptop Acer Aspire 5741-5193
 * This program is an electronic agenda that allows the user to enter school related
work. The work is stored within saved files
 * and the user can review the work at a later time through searching by date
assigned or due date. The user can also edit the
 * work stored at a later time.
 *
 */




/**
 * @author Peng Fei Wang
 *the Menu class is a menu used to allow the user to choice and navigate through the
program.
 */
public class Menu {

	static int  date;
	public static void main (String[]args) throws IOException{
		try{
		Scanner sc = new Scanner(System.in);
		int loop = 0, secondaryloop = 0;
		int input = 0;;
		Functions f1 = new Functions();
		f1.saveFileInitiation();
		date = f1.askDate();
		while (loop == 0) // infinite loop of the menu, can only escape with the
exit function
		{
			System.out.println("Main Menu");
			System.out.println("-----------------------------------------
----------------");
			System.out.println("1. Add Information");
			System.out.println("2. Retrive/Edit Previous Information");
			System.out.println("3. Quick Check");
			System.out.println("4. Search for SchoolWork/Activity with
respect to due date");
			System.out.println("5. Exit");
```

```
                    System.out.println("Enter your option:");
                    try {
                          input = sc.nextInt();

                    }
                    catch (InputMismatchException e)
                    {
                          sc.nextLine();
                    }
                    if (input == 1)
                    {
                          f1.addInformation(f1.loadDate(date)); // calls the
addInformation method to add information
                    }
                    else if (input == 2)
                    {
                          f1.editInformation();// calls the editInformation method
to edit information
                    }
                    else if (input == 3)
                    {
                          f1.quickCheck(); // calls the quickCheck method to perform
a quick check
                    }
                    else if (input == 4)
                    {
                          f1.check(); // calls the check method to perform a check
                    }
                    else if (input == 5)
                    {
                          System.exit(0); // exists the program
                    }
                    else if ( input > 5 | input < 1)
                    {
                          System.out.println("Inappropriate Input");
                    }
                    else {
                          sc.nextLine();
                          System.out.println("Inappropriate Input");
                    }


              }
        }

        catch (Exception e){
              System.out.println("An unexpected error occured");
        }

        }


}
```

```
import java.io.*;
import java.util.InputMismatchException;
import java.util.Scanner;
/**
 * @author Peng Fei Wang
 * This class stores all the functions that the program requires to function. It extends to the menu class to access
 * the date field.
 *
 */
public class Functions extends Menu {
	/**
	 * the saveFileInitiation method is used to check if saved files with the appropriate names exist and are readable
	 * if, the saved files do not exist, then this method can create new blank saved files with the appropriate names.
	 * @throws IOException
	 */

	public void saveFileInitiation () throws IOException
	{
		String namepart1;//the string that serves as the name of save files
		String name;//string that represents the complete name of a save file
		int choice;//int that represents user input
		Scanner sc = new Scanner (System.in); // used to get user input
		try {
```

```
for (int b = 1; b < 366; b++) // loop is used to go through all expected save files
{
	namepart1 = Integer.toString(b);
	name = namepart1 + ".txt";
	File file = new File (name);
	if  (file.canRead() == false) // check to see if the file can be read
	{
		System.out.println("Saved Files are either missing or the
program is denied access");
		System.out.println("1. Create new SaveFiles");
		System.out.println("2. Exit");
		System.out.println("Choose an option: ");
		choice = sc.nextInt();
		if (choice == 1)
		{
			for (int a = 1; a < 366; a++) // creates new blank saved
files
			{
				namepart1 = Integer.toString(a);
				name = namepart1 + ".txt";
				FileWriter write2 = new FileWriter (name);
				BufferedWriter write = new BufferedWriter
(write2);
				for (int z = 0; z < 60; z++)
				{
					write.newLine();
				}
				write.close();
```

```
                                        }
                                }
                                else if (choice == 2)
                                {
                                        System.exit(0);
                                }
                        }
                }
        }
        catch (IOException e) // catch io exceptions
        {
        }
        //String check = read.readLine();
        //System.out.println("check");
}



/**
 * the loadDate class is used to read a specific save file and transfer that information into a Day object.
 * @param day: an int that represents the identity of the save file to be loaded
 * @throws IOException
 */
public Day loadDate(int day) throws IOException
{
        String name;//String that is the name of the save file that will be read
        name = Integer.toString(day);
```

```
int temp2;//an int used as a temporary storage place before the information is placed into the Day object

String temp;//a string used as a temporary storage place before the information is placed into the Day object

boolean temp3;//a boolean used as a temporary storage place before the information is placed into the Day object

try {

FileReader read2 = new FileReader (name+".txt");

BufferedReader read = new BufferedReader (read2);

Day current = new Day();



for (int a = 0; a < 5; a++) //reads information and transfers the information to the Day object

{

temp = read.readLine();

current.setHomework(a, temp);

}

for (int b = 0; b < 5; b++) //reads information and transfers the information to the Day object

{

temp = read.readLine();

if (temp.equals("true"))

{

temp3 = true;

}

else temp3 = false;

current.setHomeworkstate(b, temp3);

}
```

```
for (int c = 0; c < 5; c++) //reads information and transfers the information to the
Day object
{
	temp = read.readLine();
	try{
		temp2 = Integer.parseInt(temp);
	}
	catch(NumberFormatException e)
	{
		temp2 = 0;
	}
	current.setHomeworkduedate(c, temp2);
}
for (int d = 0; d < 5; d++) //reads information and transfers the information to
the Day object
{
	temp = read.readLine();
	current.setQuiz(d, temp);
}
for (int e = 0; e < 5; e++) //reads information and transfers the information to
the Day object
{
	temp = read.readLine();
	if (temp.equals("true"))
	{
		temp3 = true;
	}
	else temp3 = false;
	current.setQuizstate(e, temp3);
```

```
                }
                for (int f = 0; f < 5; f++) //reads information and transfers the information to the
Day object
                {
                        temp = read.readLine();
                        try{
                                temp2 = Integer.parseInt(temp);
                        }
                        catch (NumberFormatException e)//catches number format exception
                        {
                                temp2 = 0;
                        }
                        current.setQuizduedate(f, temp2);
                }
                for (int g = 0; g < 5; g++) //reads information and transfers the information to
the Day object
                {
                        temp = read.readLine();
                        current.setTest(g, temp);
                }
                for (int h = 0; h < 5; h++) //reads information and transfers the information to
the Day object
                {
                        temp = read.readLine();
                        if (temp.equals("true"))
                        {
                                temp3 = true;
                        }
                        else temp3 = false;
```

```
                current.setTeststate(h, temp3);
        }
        for (int i = 0; i < 5; i++) //reads information and transfers the information to the
Day object
        {
                temp = read.readLine();
                try {
                        temp2 = Integer.parseInt(temp);
                }
                catch (NumberFormatException e){//catches number format exception
                        temp2 = 0;
                }

                current.setTestduedate(i, temp2);
        }
        for (int j = 0; j < 5; j++) //reads information and transfers the information to the
Day object
        {
                temp = read.readLine();
                current.setAssignment(j, temp);
        }
        for (int k = 0; k < 5; k++) //reads information and transfers the information to
the Day object
        {
                temp = read.readLine();
                if (temp.equals("true"))
                {
                        temp3 = true;
                }
```

```
                    else temp3 = false;
                    current.setAssignmentstate(k, temp3);
                }
                for (int l = 0; l < 5; l++) //reads information and transfers the information to the
Day object
                {
                    temp = read.readLine();
                    try{
                        temp2 = Integer.parseInt(temp);
                    }
                    catch (NumberFormatException e) //catches number format exception
                    {
                        temp2 = 0;
                    }
                    current.setAssignmentduedate(l, temp2);
                }
                read.close();
                return current;
            } catch (FileNotFoundException e) {
                System.out.println("Saved file does not exist, please reload the program");


            }
            Day placeholder = new Day(); //place holder null object returned if an error occured in
reading the saved file
            return placeholder;
        }


        /**
```

```
 * the saveDate method is used to save the information of a Day object to a save file
 * @param date: an integer that represents the name of the saved file
 * @param current: a Day object that will have its information saved to a text file.
 * @throws IOException
 */
public void saveDate(int date, Day current) throws IOException
{
	String name = Integer.toString(date);

	try {
		FileWriter write2 = new FileWriter (date+".txt");
		BufferedWriter write = new BufferedWriter (write2);


		for (int a = 0; a < 5; a++) //writes information from Day object to save file
		{
		write.write(current.getHomework(a));
		write.newLine();
		}
		for (int b = 0; b < 5; b++) //writes information from Day object to save file
		{

			if (current.getHomeworkstate(b)==true)
			{
				write.write("true");
				write.newLine();
			}
			else
```

```
            {
                write.write("false");
                write.newLine();
            }

}
for (int c = 0; c < 5; c++)//writes information from Day object to save file
{

            write.write(Integer.toString(current.getHomeworkduedate(c)));
            write.newLine();
}
for (int d = 0; d < 5; d++)//writes information from Day object to save file
{
            write.write(current.getQuiz(d));
            write.newLine();
}
for (int e = 0; e < 5; e++)//writes information from Day object to save file
{

            if (current.getQuizstate(e)==true)
            {
                write.write("true");
                write.newLine();
            }
            else
            {
                write.write("false");
```

```
                write.newLine();
        }

}
for (int f = 0; f < 5; f++)//writes information from Day object to save file
{

        write.write(Integer.toString(current.getQuizduedate(f)));
        write.newLine();
}
for (int g = 0; g < 5; g++)//writes information from Day object to save file
{
write.write(current.getTest(g));
write.newLine();
}
for (int h = 0; h < 5; h++)//writes information from Day object to save file
{

        if (current.getTeststate(h)==true)
        {
                write.write("true");
                write.newLine();
        }
        else
        {
                write.write("false");
                write.newLine();
        }
```

```
}
for (int i = 0; i < 5; i++)//writes information from Day object to save file
{

        write.write(Integer.toString(current.getTestduedate(i)));
        write.newLine();
}
for (int j = 0; j < 5; j++)//writes information from Day object to save file
{
write.write(current.getAssignment(j));
write.newLine();
}
for (int k = 0; k < 5; k++)//writes information from Day object to save file
{

        if (current.getAssignmentstate(k)==true)
        {
                write.write("true");
                write.newLine();
        }
        else
        {
                write.write("false");
                write.newLine();
        }

}
```

```
                for (int l = 0; l < 5; l++)//writes information from Day object to save file
                {

                        write.write(Integer.toString(current.getAssignmentduedate(l)));
                        write.newLine();
                }
                write.close();

        } catch (FileNotFoundException e) // catches file not found exceptions
        {
                System.out.println("Saved file does not exist, please reload the program");

        }

}
```

```
        /**the askDate method asks the user for the current date by asking for month and day. This information is converted
         * to an absolute scale where january first is represented as 1, january second is represented as 2 ... all the day to
         * december 31st.
         * @return int: the integer returned represents the absolute scale of the date inputted by the user
         */
        public int askDate()
        {
                Scanner sc = new Scanner(System.in);
```

```
int month = 0, day = 0, presentDate = 0;
int loop = 0;
while (loop == 0)
{
        loop = 1;
System.out.println("Please Select the Current Month: ");
System.out.println("1. January ");
System.out.println("2. February ");
System.out.println("3. March ");
System.out.println("4. April ");
System.out.println("5. May ");
System.out.println("6. June ");
System.out.println("7. July ");
System.out.println("8. Auguest ");
System.out.println("9. September ");
System.out.println("10. October ");
System.out.println("11. November ");
System.out.println("12. December ");
System.out.println("Please Enter Your Choice ");
try {
        month = sc.nextInt(); // asks user for month
        sc.nextLine();

        System.out.println("Please Enter the Present Day of the Month: ");

        day = sc.nextInt(); // asks user for day
```

```
if (month == 1) // conversion from month day to absolute scale
{
	presentDate = day;
}
else if (month == 2)
{
	presentDate = day+31;
}
else if (month == 3)
{
	presentDate = day+31+28;
}
else if (month == 4)
{
	presentDate = day+31+28+31;
}
else if (month == 5)
{
	presentDate = day+31+28+31+30;
}
else if (month == 6)
{
	presentDate = day+31+28+31+30+31;
}
else if (month == 7)
{
	presentDate = day+31+28+31+30+31+30;
```

```
            }
            else if (month == 8)
            {
                  presentDate = day+31+28+31+30+31+30+31;
            }
            else if (month == 9)
            {
                  presentDate = day+31+28+31+30+31+30+31+31;
            }
            else if (month == 10)
            {
                  presentDate = day+31+28+31+30+31+30+31+31+30;
            }
            else if (month == 11)
            {
                  presentDate = day+31+28+31+30+31+30+31+31+30+31;
            }
            else if (month == 12)
            {
                  presentDate = day+31+28+31+30+31+30+31+31+30+31+30;
            }
}
catch (InputMismatchException e) //catches input mistmatch exceptions
{

}
if ( month > 12 | month < 1 | day > 31 | day < 1) // catches inappropriate input
{
```

```
                    sc.nextLine();
                    System.out.println("Inappropriate Input");
                    loop = 0;
                    presentDate = 0;
            }
            else {
            }
            }
        return presentDate;
        }



        /**
         *The addInformation method takes in specific input and adds the information from the input to the day
         * @param currentDay: this it the Day object that will have additional information added to it
         * @throws IOException
         */
        public void  addInformation (Day currentDay) throws IOException
        {

            int input, secondaryinput, newdate;
            String info;
            int exit = 0;
            boolean error = false;
            int count = 0;
            boolean found = false;
```

```
Scanner sc = new Scanner (System.in);
System.out.println("Add Information:");
System.out.println("Which category does the new school work/activity fall under?");
System.out.println("1. Homework");
System.out.println("2. Assignment");
System.out.println("3. Quiz");
System.out.println("4. Test");
System.out.println("5. Return to Main Menu");
System.out.println("Please Enter Your Choice:");
try {
input = sc.nextInt();
sc.nextLine();
if (input == 1)
{
        System.out.println("New Homework");
        System.out.println("Is the homework due?");
        System.out.println("1. Tomorrow");
        System.out.println("2. The Day After Tomorrow");
        System.out.println("3. Other");
        secondaryinput = sc.nextInt();
        sc.nextLine();
        if (secondaryinput == 1)
        {

                for (int a = 0; a < 5; a++) //searches for a free slot out of the 5
available spaces for new homework
                {
```

```
                                        if (currentDay.getHomework(a).equals("") == true)
                                        {
                                                currentDay.setHomeworkduedate(a, date+1); //
sets the due date
                                                System.out.println("Please Enter Information
Concerning this Homework: ");
                                                info = sc.nextLine();
                                                currentDay.setHomework(a, info); //sets the
general information
                                                currentDay.setHomeworkstate(a,false); //sets
the state of the work
                                                found = true;
                                        }
                                        if (a == 4 && found == false)
                                        {
                                                System.out.println("There are no more spaces
for new Homework");
                                        }
                                        if (found == true)
                                        {
                                                a = 6;
                                        }

                                }


                        }
                        else if (secondaryinput == 2)
                        {
                                for (int b = 0; b < 5; b++)
```

```
                {

                        if (currentDay.getHomework(b).equals("") == true)
                        {
                                currentDay.setHomeworkduedate(b, date+2);
                                System.out.println("Please Enter Information
Concerning this Homework: ");
                                info = sc.nextLine();
                                currentDay.setHomework(b, info);
                                currentDay.setHomeworkstate(b,false);
                                found = true;
                        }
                        count ++;
                        if (b == 4 && found == false)
                        {
                                System.out.println("There are no more spaces
for new Homework");
                        }
                        if (found  == true)
                        {
                                b = 6;
                        }

                }
        }
        else if (secondaryinput == 3)
        {
                newdate = askDate();
```

```
                    for (int c = 0; c < 5; c++)
                    {

                                        if (currentDay.getHomework(c).equals("") == true)
                                        {
                                                currentDay.setHomeworkduedate(c, newdate);
                                                System.out.println("Please Enter Information
Concerning this Homework: ");
                                                info = sc.nextLine();
                                                currentDay.setHomework(c, info);
                                                currentDay.setHomeworkstate(c,false);
                                                found = true;
                                        }
                                        count ++;
                                        if (c == 5 && found == false)
                                        {
                                                System.out.println("There are no more spaces
for new Homework");
                                        }
                                        if (found == true)
                                        {
                                                c = 6;

                                        }

                    }
            }
            else error = true;
```

```
}
else if (input == 2)
{
        System.out.println("New Assignment");
        System.out.println("Is the Assignment due?");
        System.out.println("1. Tomorrow");
        System.out.println("2. The Day After Tomorrow");
        System.out.println("3. Other");
        secondaryinput = sc.nextInt();
        sc.nextLine();
        if (secondaryinput == 1)
        {

                for (int d = 0; d < 5; d++)
                {

                        if (currentDay.getAssignment(d).equals("") == true)
                        {
                                currentDay.setAssignmentduedate(d, date+1);
                                System.out.println("Please Enter Information
Concerning this Assignment: ");
                                info = sc.nextLine();
                                currentDay.setAssignment(d, info);
                                currentDay.setAssignmentstate(d,false);
                                found = true;
                        }
                        if (d == 4 && found == false)
```

```
                                        {
                                                System.out.println("There are no more spaces
for new Assignment");
                                        }
                                        if (found == true)
                                        {
                                                d = 6;
                                        }

                                }


                }
                else if (secondaryinput == 2)
                {
                        for (int e = 0; e < 5; e++)
                        {

                                        if (currentDay.getAssignment(e).equals("") == true)
                                        {
                                                currentDay.setHomeworkduedate(e, date+2);
                                                System.out.println("Please Enter Information
Concerning this Assignment: ");
                                                info = sc.nextLine();
                                                currentDay.setAssignment(e, info);
                                                currentDay.setAssignmentstate(e,false);
                                                found = true;
                                        }
```

```
                                        count ++;
                                        if (e == 4 && found == false)
                                        {
                                                System.out.println("There are no more spaces
for new Assignment");
                                        }
                                        if (found  == true)
                                        {
                                                e = 6;
                                        }

                        }
                }
                else if (secondaryinput == 3)
                {
                        newdate = askDate();
                        for (int f = 0; f < 5; f++)
                        {

                                        if (currentDay.getAssignment(f).equals("") == true)
                                        {
                                                currentDay.setAssignmentduedate(f, newdate);
                                                System.out.println("Please Enter Information
Concerning this Assignment: ");
                                                info = sc.nextLine();
                                                currentDay.setAssignment(f, info);
                                                currentDay.setAssignmentstate(f,false);
                                                found = true;
```

```
                                        }
                                        count ++;
                                        if (f == 5 && found == false)
                                        {
                                                System.out.println("There are no more spaces
for new Assignment");
                                        }
                                        if (found == true)
                                        {
                                                f = 6;


                                        }


                                }
                        }
                        else error = true;
                }
                else if (input == 3)
                {
                        System.out.println("New Quiz");
                        System.out.println("Is the Quiz due?");
                        System.out.println("1. Tomorrow");
                        System.out.println("2. The Day After Tomorrow");
                        System.out.println("3. Other");
                        secondaryinput = sc.nextInt();
                        sc.nextLine();
                        if (secondaryinput == 1)
                        {
```

```
                    for (int g = 0; g < 5; g++)
                    {

                        if (currentDay.getQuiz(g).equals("") == true)
                        {
                            currentDay.setQuizduedate(g, date+1);
                            System.out.println("Please Enter Information
Concerning this Quiz: ");
                            info = sc.nextLine();
                            currentDay.setQuiz(g, info);
                            currentDay.setQuizstate(g,false);
                            found = true;
                        }
                        if (g == 4 && found == false)
                        {
                            System.out.println("There are no more spaces
for new Quiz");
                        }
                        if (found == true)
                        {
                            g = 6;
                        }

                    }


                }
```

```
                else if (secondaryinput == 2)
                {
                        for (int h = 0; h < 5; h++)
                        {

                                        if (currentDay.getQuiz(h).equals("") == true)
                                        {
                                                currentDay.setQuizduedate(h, date+2);
                                                System.out.println("Please Enter Information
Concerning this Quiz: ");
                                                info = sc.nextLine();
                                                currentDay.setQuiz(h, info);
                                                currentDay.setQuizstate(h,false);
                                                found = true;
                                        }
                                        count ++;
                                        if (h == 4 && found == false)
                                        {
                                                System.out.println("There are no more spaces
for new Quiz");
                                        }
                                        if (found  == true)
                                        {
                                                h = 6;
                                        }

                        }
                }
```

```
else if (secondaryinput == 3)
{
	newdate = askDate();
	for (int i = 0; i < 5; i++)
	{

		if (currentDay.getQuiz(i).equals("") == true)
		{
			currentDay.setQuizduedate(i, newdate);
			System.out.println("Please Enter Information
Concerning this Quiz: ");
			info = sc.nextLine();
			currentDay.setQuiz(i, info);
			currentDay.setQuizstate(i,false);
			found = true;
		}
		count ++;
		if (i == 5 && found == false)
		{
			System.out.println("There are no more spaces
for new Quiz");
		}
		if (found == true)
		{
			i = 6;

		}
```

```
                        }
                }
                else error = true;
        }
        else if (input == 4)
        {
                System.out.println("New Test");
                System.out.println("Is the Test due?");
                System.out.println("1. Tomorrow");
                System.out.println("2. The Day After Tomorrow");
                System.out.println("3. Other");
                secondaryinput = sc.nextInt();
                sc.nextLine();
                if (secondaryinput == 1)
                {

                        for (int j = 0; j < 5; j++)
                        {

                                if (currentDay.getTest(j).equals("") == true)
                                {
                                        currentDay.setTestduedate(j, date+1);
                                        System.out.println("Please Enter Information
Concerning this Test: ");
                                        info = sc.nextLine();
                                        currentDay.setTest(j, info);
                                        currentDay.setTeststate(j,false);
                                        found = true;
```

```
                                        }
                                        if (j == 4 && found == false)
                                        {
                                                System.out.println("There are no more spaces
for new Test");
                                        }
                                        if (found == true)
                                        {
                                                j = 6;
                                        }

                                }


                }
                else if (secondaryinput == 2)
                {
                        for (int k = 0; k < 5; k++)
                        {

                                        if (currentDay.getTest(k).equals("") == true)
                                        {
                                                currentDay.setTestduedate(k, date+2);
                                                System.out.println("Please Enter Information
Concerning this Test: ");
                                                info = sc.nextLine();
                                                currentDay.setTest(k, info);
                                                currentDay.setTeststate(k,false);
```

```
                                found = true;
                        }
                        count ++;
                        if (k == 4 && found == false)
                        {
                                System.out.println("There are no more spaces
for new Test");
                        }
                        if (found  == true)
                        {
                                k = 6;
                        }

                }
        }
        else if (secondaryinput == 3)
        {
                newdate = askDate();
                for (int l = 0; l < 5; l++)
                {

                        if (currentDay.getTest(l).equals("") == true)
                        {
                                currentDay.setTestduedate(l, newdate);
                                System.out.println("Please Enter Information
Concerning this Test: ");
                                info = sc.nextLine();
                                currentDay.setTest(l, info);
```

```
                    currentDay.setTeststate(l,false);
                    found = true;
                }
                count ++;
                if (l == 5 && found == false)
                {
                    System.out.println("There are no more spaces
for new Test");
                }
                if (found == true)
                {
                    l = 6;

                }

                }
            }
            else error = true;
        }
        else if (input == 5)
        {
        exit = 1;
        }
        else
        {
            error = true;
        }
        if (error == false && exit != 1)
```

```
                {
                saveDate(date, currentDay); // saves the Day object to the save file
                System.out.println("Action Completed");
                }
                else if (exit == 1)
                {

                }
                else System.out.println("Inappropriate Input");
                }
                catch (InputMismatchException e)
                {
                        System.out.println("Inappropriate input");
                }


        }
        /**
         * the editInformation method alters the information stored in a Day object to new user inputed information
         * @throws IOException
         */
        public void  editInformation () throws IOException
        {

                int input, secondaryinput, newdate = 0, choice, worknumber;
                String info;
                int end = 0;
```

```
boolean error = false;
boolean found = false;
Scanner sc = new Scanner (System.in);
System.out.println("Which Day would you like to revisit?");
System.out.println("1. Today");
System.out.println("2. Yesterday");
System.out.println("3. The Day Before Yesterday");
System.out.println("4. Other");
try{
	input = sc.nextInt(); // gets file name
	sc.nextLine();
	if (input == 1)
	{
		newdate = date;
	}
	else if (input == 2)
	{
		newdate = date-1;
	}
	else if (input == 3)
	{
		newdate = date -2;
	}
	else if (input == 4)
	{
		newdate = askDate();
	}
	else error = true;
```

```
                if (error != true)
                {
                        System.out.println("Which category does the new school work/activity
fall under?");
                        System.out.println("1. Homework");
                        System.out.println("2. Assignment");
                        System.out.println("3. Quiz");
                        System.out.println("4. Test");
                        System.out.println("5. Return to Main Menu");
                        System.out.println("Please Enter Your Choice:");
                        input = sc.nextInt();
                        sc.nextLine();
                        Day day = new Day();
                        day = loadDate(newdate);
                        if (input == 1)
                        {
                                System.out.println("Please Choose which Homework to Edit");
                                for (int y = 0; y < 5; y++)
                                {
                                        System.out.println(y+1+". "+day.getHomework(y));
                                }
                                System.out.println("6. Return to Main Menu");
                                worknumber = sc.nextInt();
                                sc.nextLine();
                                if (worknumber < 6 && worknumber > 0){
                                        System.out.println("Please Select Option");
                                        System.out.println("1. Check Completed");
```

```
                                        System.out.println("2. Edit Information");
                                        choice = sc.nextInt();
                                        sc.nextLine();

                                        if (choice == 1 && day.getHomework(worknumber-
1).equals("") != true)
                                        {
                                                day.setHomeworkstate(worknumber-1, true);
                                        }
                                        else if (choice == 2&& day.getHomework(worknumber-
1).equals("") != true)
                                        {
                                                System.out.println("Enter Revised
Information");
                                                info = sc.nextLine();
                                                day.setHomework(worknumber-1, info);
                                        }
                                }else System.out.println("Inappropriate Input");
                        }
                        else if (input == 2)
                        {
                                System.out.println("Please Choose which Assignment to Edit");
                                for (int x = 0; x < 5; x++)
                                {
                                        System.out.println(x+1+". "+day.getAssignment(x));
                                }
                                System.out.println("6. Return to Main Menu");
                                worknumber = sc.nextInt();
                                sc.nextLine();
```

```
                    if (worknumber < 6 && worknumber > 0){
                        System.out.println("Please Select Option");
                        System.out.println("1. Check Completed");
                        System.out.println("2. Edit Information");
                        choice = sc.nextInt();
                        sc.nextLine();

                        if (choice == 1)
                        {
                            day.setAssignmentstate(worknumber-1, true);
                        }
                        else if (choice == 2)
                        {
                            System.out.println("Enter Revised
Information");

                            info = sc.nextLine();
                            day.setAssignment(worknumber-1, info);
                        }
                    }
                    else System.out.println("Inappropriate Input");
                }
                else if (input == 3)
                {
                    System.out.println("Please Choose which Quiz to Edit");
                    for (int v = 0; v < 5; v++)
                    {
                        System.out.println(v+1+". "+day.getQuiz(v));
                    }
```

```
                System.out.println("6. Return to Main Menu");
                worknumber = sc.nextInt();
                sc.nextLine();
                if (worknumber < 6 && worknumber > 0){
                        System.out.println("Please Select Option");
                        System.out.println("1. Check Completed");
                        System.out.println("2. Edit Information");
                        choice = sc.nextInt();
                        sc.nextLine();

                        if (choice == 1)
                        {
                                day.setQuizstate(worknumber-1, true);
                        }
                        else if (choice == 2)
                        {
                                System.out.println("Enter Revised
Information");
                                info = sc.nextLine();
                                day.setQuiz(worknumber-1, info);
                        }
                }
                else System.out.println("Inappropriate Input");
        }
        else if (input == 4)
        {
                System.out.println("Please Choose which Test to Edit");
                for (int w = 0; w < 5; w++)
```

```
                {
                        System.out.println(w+1+". "+day.getTest(w));
                }
                System.out.println("6. Return to Main Menu");
                worknumber = sc.nextInt();
                sc.nextLine();
                if (worknumber < 6 && worknumber > 0){
                        System.out.println("Please Select Option");
                        System.out.println("1. Check Completed");
                        System.out.println("2. Edit Information");
                        choice = sc.nextInt();
                        sc.nextLine();

                        if (choice == 1)
                        {
                                day.setTeststate(worknumber-1, true);
                        }
                        else if (choice == 2)
                        {
                                System.out.println("Enter Revised
Information");
                                info = sc.nextLine();
                                day.setTest(worknumber-1, info);
                        }
                }
                else System.out.println("Inappropriate Input");
        }
        else if (input == 5)
```

```
                {
                        end = 1;
                }
                else
                {
                        error = true;
                }
                if (error == false && end != 1)
                {
                        saveDate(date, day); // saves the Day object to the save file
                        System.out.println("Action Completed");
                }
                else if (end == 1)
                {

                }
                else System.out.println("Inappropriate input");

        }
        else
        {
                System.out.println("Inappropriate input");
        }
}
catch (InputMismatchException e)
{
        System.out.println("Inappropriate input");
}
```

```
}



/**
 * the quickCheck method searches through all the save files to check if any school work is due within 7 days of the
 * present day
 * @throws IOException
 */
public void  quickCheck () throws IOException
{

        int input, secondaryinput, newdate = 0, choice, worknumber;
        String info, name;
        boolean found = false;
        boolean error = false;
        Scanner sc = new Scanner (System.in);
        try{
        System.out.println("Quick Check");
        System.out.println("1. All homework due in the next 7 days");
        System.out.println("2. All assignments due in the next 7 days");
        System.out.println("3. All quizzes occurring in the next 7 days");
        System.out.println("4. All tests occurring in the next 7 days");
        input = sc.nextInt();
        sc.nextLine();
        int loop = 0, traverse = 1;
        LinkedList list = new LinkedList(); // creates a linked list to contain the Day objects the meet the 7 days criteria
```

```
if (input == 1)
{
	System.out.println("List of Homework due in the next 7 days: ");

	for (int b = 1; b < 366; b++) // loop that searches through all save files
	{

		Day day = new Day ();
		day = loadDate(b); //loads the Day object to check its contents
		for (int a = 0; a<5; a++)
		{
		if (day.getHomeworkduedate(a) < date + 7 &&
day.getHomeworkduedate(a) >= date) //checks if due date is within 7 days
		{

			Node newnode = new Node (day.getHomeworkduedate(a),
day); // makes a new node that contains the Day object that fit the criteria
			list.appendFront(newnode); // adds the new node to the linked
list
			System.out.print(traverse + ". "+ day.getHomework(a)+ "    Due:
");// prints the school work information
			dateGenerator(day.getHomeworkduedate(a)); // converts
absolute date to month, day format
			if (day.getHomeworkstate(a) == true)
			{
				System.out.println("finished");
			}
			else System.out.println("unfinished");
```

```
                    traverse ++;
                }
                }

            }
            System.out.println("Enter an Integer to Return to Main Menu");
            input = sc.nextInt();
            sc.nextLine();

        }
        else if (input == 2)
        {
            System.out.println("List of Assignment due in the next 7 days: ");

            for (int c = 1; c < 366; c++)
            {

                Day day = new Day ();
                day = loadDate(c);
                for (int d = 0; d<5; d++)
                {
                if (day.getAssignmentduedate(d) < date + 7 &&
day.getAssignmentduedate(d) >= date)
                {

                    Node newnode = new Node (day.getAssignmentduedate(d),
day);
                    list.appendFront(newnode);
```

```
                                        System.out.print(traverse + ". "+ day.getAssignment(d)+ "
Due: ");
                                        dateGenerator(day.getAssignmentduedate(d));
                                        if (day.getAssignmentstate(d) == true)
                                        {
                                                System.out.println("finished");
                                        }
                                        else System.out.println("unfinished");
                                        traverse ++;
                                }
                                }

                        }
                        System.out.println("Enter an Integer to Return to Main Menu");
                        input = sc.nextInt();
                        sc.nextLine();
                }
                else if (input == 3)
                {
                        System.out.println("List of Quiz due in the next 7 days: ");

                        for (int e = 1; e < 366; e++)
                        {

                                Day day = new Day ();
                                day = loadDate(e);
                                for (int f = 0; f<5; f++)
                                {
```

```
                if (day.getQuizduedate(f) < date + 7 && day.getQuizduedate(f) >= date)
                {

                        Node newnode = new Node (day.getQuizduedate(f), day);
                        list.appendFront(newnode);
                        System.out.print(traverse + ". "+ day.getQuiz(f)+ "    Due: ");
                        dateGenerator(day.getQuizduedate(f));
                        if (day.getQuizstate(f) == true)
                        {
                                System.out.println("finished");
                        }
                        else System.out.println("unfinished");
                        traverse ++;
                }
                }

        }
        System.out.println("Enter an Integer to Return to Main Menu");
        input = sc.nextInt();
        sc.nextLine();
}
else if (input == 4)
{
System.out.println("List of Tests due in the next 7 days: ");

        for (int g = 1; g < 366; g++)
        {
```

```
                    Day day = new Day ();
                    day = loadDate(g);
                    for (int h = 0; h<5; h++)
                    {
                    if (day.getTestduedate(h) < date + 7 && day.getTestduedate(h) >= date)
                    {

                            Node newnode = new Node (day.getTestduedate(h), day);
                            list.appendFront(newnode);
                            System.out.print(traverse + ". "+ day.getTest(h)+ "    Due: ");
                            dateGenerator(day.getTestduedate(h));
                            if (day.getTeststate(h) == true)
                            {
                                    System.out.println("finished");
                            }
                            else System.out.println("unfinished");
                            traverse ++;
                    }
                    }

            }
            System.out.println("Enter an Integer to Return to Main Menu");
            input = sc.nextInt();
            sc.nextLine();
    }

    }
    catch (InputMismatchException e)
```

```
		{
			System.out.println("Inappropriate input");
		}
	}

	/**
	 * the check method finds all school work due on a specific user entered date and displays this list.
	 * @throws IOException
	 */
	public void  check () throws IOException
	{

		int input, secondaryinput, newdate = 0, choice, worknumber;
		String info, name;
		boolean found = false;
		boolean error = false;
		Scanner sc = new Scanner (System.in);
		System.out.println("Search for school work/activity in respect to due date:");
		System.out.println("Which day is the school work/activity due?");
		System.out.println("1. Tomorrow");
		System.out.println("2. The Day After Tomorrow");
		System.out.println("3. Other");
		try{
		input = sc.nextInt();
		sc.nextLine();
		if (input == 1)
		{
```

```
                newdate = date+ 1;
            }
            else if (input == 2)
            {
                newdate = date + 2;
            }
            else if (input == 3)
            {
                newdate = askDate();
            }
            else error = true;
            if (error != true){
            int loop = 0, traverse = 1;
            LinkedList list = new LinkedList(); // linked list that stores the list of school work due on the specified day
            System.out.println("1. Display only Homework");
            System.out.println("2. Display only Assignment");
            System.out.println("3. Display only Quiz");
            System.out.println("4. Display only Test");
            input = sc.nextInt();
            sc.nextLine();

            if (input == 1)
            {
                System.out.println("List of Homework due on specified date:");
                for (int b = 1; b < 366; b++) // searches all saved files to find school work that is due on specified date
                {
```

```
                    Day day = new Day ();
                    day = loadDate(b);
                    for (int a = 0; a<5; a++)
                    if (day.getHomeworkduedate(a) == newdate)
                    {
                        Node newnode = new Node (day.getHomeworkduedate(a),
day); // node of Day object with school work due on the specific day
                        list.appendFront(newnode); // adds the node to the linked list
                        System.out.print(traverse + ". "+ day.getHomework(a)+"    Due:
"); // displays the data from the Day object
                        dateGenerator(day.getHomeworkduedate(a));
                        if (day.getHomeworkstate(a) == true)
                        {
                            System.out.println("finished");
                        }
                        else System.out.println("unfinished");

                        traverse ++;
                    }

                }
                System.out.println("Enter an Integer to Return to Main Menu");
                input = sc.nextInt();
                sc.nextLine();

            }
            else if (input == 2)
```

```
                {
                        System.out.println("List of Assignment due on specified date:");
                        for (int c = 1; c < 366; c++)
                        {
                                Day day = new Day ();
                                day = loadDate(c);
                                for (int d = 0; d<5; d++)
                                if (day.getAssignmentduedate(d) == newdate)
                                {
                                        Node newnode = new Node (day.getAssignmentduedate(d),
day);
                                        list.appendFront(newnode);
                                        System.out.print(traverse + ". "+ day.getAssignment(d)+"    Due:
");
                                        dateGenerator(day.getAssignmentduedate(d));
                                        if (day.getAssignmentstate(d) == true)
                                        {
                                                System.out.println("finished");
                                        }
                                        else System.out.println("unfinished");

                                        traverse ++;
                                }

                        }
                        System.out.println("Enter an Integer to Return to Main Menu");
                        input = sc.nextInt();
                        sc.nextLine();
```

```
}
else if (input == 3)
{
        System.out.println("List of Quiz due on specified date:");
        for (int e = 1; e < 366; e++)
        {
                Day day = new Day ();
                day = loadDate(e);
                for (int f = 0; f<5; f++)
                if (day.getQuizduedate(f) == newdate)
                {
                        Node newnode = new Node (day.getQuizduedate(f), day);
                        list.appendFront(newnode);
                        System.out.print(traverse + ". "+ day.getQuiz(f)+"    Due: ");
                        dateGenerator(day.getQuizduedate(f));
                        if (day.getQuizstate(f) == true)
                        {
                                System.out.println("finished");
                        }
                        else System.out.println("unfinished");

                        traverse ++;
                }

        }
        System.out.println("Enter an Integer to Return to Main Menu");
        input = sc.nextInt();
        sc.nextLine();
```

```
}
else if (input == 4)
{
        System.out.println("List of Test due on specified date:");
        for (int g = 1; g < 366; g++)
        {
                Day day = new Day ();
                day = loadDate(g);
                for (int h = 0; h<5; h++)
                if (day.getTestduedate(h) == newdate)
                {
                        Node newnode = new Node (day.getTestduedate(h), day);
                        list.appendFront(newnode);
                        System.out.print(traverse + ". "+ day.getTest(h)+"    Due: ");
                        dateGenerator(day.getTestduedate(h));
                        if (day.getTeststate(h) == true)
                        {
                                System.out.println("finished");
                        }
                        else System.out.println("unfinished");

                        traverse ++;
                }

        }
        System.out.println("Enter an Integer to Return to Main Menu");
        input = sc.nextInt();
        sc.nextLine();
```

```
                }
                }
                else System.out.println("Inappropriate Input");
                }
                catch (InputMismatchException e)
                {
                        System.out.println("Inappropriate Input");
                }
        }
        /**
         * the dateGenerator method takes date represented as integers from 1-365 and converts it to the format month, day
         * @param date
         */
        public void dateGenerator (int date)
        {
                String temp;
                if (date - (31+28+31+30+31+30+31+31+30+31+30) > 0)
                {
                        temp = Integer.toString(date-(31+28+31+30+31+30+31+31+30+31+30));
                        System.out.println("December " + temp );
                }
                else if (date - (31+28+31+30+31+30+31+31+30+31) > 0)
                {
                        temp = Integer.toString(date-(31+28+31+30+31+30+31+31+30+31));
                        System.out.println("November " + temp );
                }
                else if (date - (31+28+31+30+31+30+31+31+30) > 0)
```

```
{
        temp = Integer.toString(date-(31+28+31+30+31+30+31+31+30));
        System.out.println("October " + temp );
}
else if (date - (31+28+31+30+31+30+31+31) > 0)
{
        temp = Integer.toString(date-(31+28+31+30+31+30+31+31));
        System.out.println("September " + temp );
}
else if (date - (31+28+31+30+31+30+31) > 0)
{
        temp = Integer.toString(date-(31+28+31+30+31+30+31));
        System.out.println("August " + temp );
}
else if (date - (31+28+31+30+31+30) > 0)
{
        temp = Integer.toString(date-(31+28+31+30+31+30));
        System.out.println("July " + temp );
}
else if (date - (31+28+31+30+31) > 0)
{
        temp = Integer.toString(date-(31+28+31+30+31));
        System.out.println("June " + temp );
}
else if (date - (31+28+31+30) > 0)
{
        temp = Integer.toString(date-(31+28+31+30));
        System.out.println("May " + temp );
```

```
                }
                else if (date - (31+28+31) > 0)
                {
                        temp = Integer.toString(date-(31+28+31));
                        System.out.println("April " + temp );
                }
                else if (date - (31+28) > 0)
                {
                        temp = Integer.toString(date-(31+28));
                        System.out.println("March " + temp );
                }
                else if (date - (31) > 0)
                {
                        temp = Integer.toString(date-(31));
                        System.out.println("February " + temp );
                }
                else if (date > 0)
                {
                        temp = Integer.toString(date);
                        System.out.println("January " + temp );
                }


        }
}
/**
 * This class is the Node used in a linked list
 * @author Peter
 *
 */
public class Node {
```

```
	private int duedate;
	private Day thisday;
	private Node next;

	Node (int duedate, Day thisday)
	{
		this.duedate = duedate;
		this.thisday = thisday;
		this.next = null;
	}

	/**
	 * @return the duedate
	 */
	public int getDuedate() {
		return duedate;
	}

	/**
	 * @param duedate the duedate to set
	 */
	public void setDuedate(int duedate) {
		this.duedate = duedate;
	}

	/**
	 * @return the next
	 */
	public Node getNext() {
		return next;
	}

	/**
	 * @param next the next to set
	 */
	public void setNext(Node next) {
		this.next = next;
	}

	/**
	 * @return the thisday
	 */
	public Day getThisday() {
		return thisday;
	}

	/**
	 * @param thisday the thisday to set
	 */
	public void setThisday(Day thisday) {
		this.thisday = thisday;
	}

}
/**
```

```
 * This class is used to create linked lists
 * @author Peng Fei Wang
 *
 */
public class LinkedList {
private Node head;
/**
 * the method get, returns a Node from the linked list
 * @param index: int used to locate the Node to be returned
 * @return Node
 */
public Node get(int index)
{
        Node temp = head;
        Node temp2;
        int counter = 0;
        for (temp2 = temp; counter <= index; temp = temp2.getNext()) // traveres the
linked list until the index is reached
        {
               if (counter == index)
               {
                      return temp;
               }
               counter ++;
               temp2 = temp;
        }
        return null;
}
/**
 * the method appendFront adds a Node to the front of the linked list
 * @param o
 */
public void appendFront(Node o)
{
       Node temp;
        temp = head;
        head = o;
        head.setNext(temp);
}
/**
 * the method size returns the size of the linked list
 * @return int: represents the size of the linked list
 */
public int size()
{
        Node temp = head;
        Node temp2;
        int size = 0;
        for (temp2 = temp; temp != null; temp = temp2.getNext())
        {
               size++;
               temp2 = temp;
        }
        return size;
}
```

```
}


public class Day {

	String [] homework = new String [5];
	boolean [] homeworkstate = new boolean [5];
	int [] homeworkduedate = new int [5];
	String [] quiz = new String [5];
	boolean [] quizstate = new boolean [5];
	int [] quizduedate = new int [5];
	String [] test = new String [5];
	boolean [] teststate = new boolean [5];
	int [] testduedate = new int [5];
	String [] Assignment = new String [5];
	boolean [] assignmentstate = new boolean [5];
	int [] assignmentduedate = new int [5];

	/**
	 * @return the assignment
	 */
	public String getAssignment(int index) {
		return Assignment[index];
	}
	/**
	 * @param assignment the assignment to set
	 */
	public void setAssignment(int index, String assignment) {
		Assignment[index] = assignment;
	}
	/**
	 * @return the assignmentstate
	 */
	public boolean getAssignmentstate(int index) {
		return assignmentstate[index];
	}
	/**
	 * @param assignmentstate the assignmentstate to set
	 */
	public void setAssignmentstate(int index, boolean assignmentstate) {
		this.assignmentstate[index] = assignmentstate;
	}
	/**
	 * @return the assignmentduedate
	 */
	public int getAssignmentduedate(int index) {
		return assignmentduedate[index];
	}
	/**
	 * @param assignmentduedate the assignmentduedate to set
	 */
	public void setAssignmentduedate(int index, int assignmentduedate) {
		this.assignmentduedate[index] = assignmentduedate;
	}
	/**
```

```
 * @return the homework
 */

public String getHomework(int index) {
	return homework [index];
}
/**
 * @param homework the homework to set
 */
public void setHomework(int index, String homework) {
	this.homework[index] = homework;
}
/**
 * @return the homeworkstate
 */
public boolean getHomeworkstate(int index) {
	return homeworkstate[index];
}
/**
 * @param homeworkstate the homeworkstate to set
 */
public void setHomeworkstate(int index, boolean homeworkstate) {
	this.homeworkstate[index] = homeworkstate;
}
/**
 * @return the homeworkduedate
 */
public int getHomeworkduedate(int index) {
	return homeworkduedate[index];
}
/**
 * @param homeworkduedate the homeworkduedate to set
 */
public void setHomeworkduedate(int index, int homeworkduedate) {
	this.homeworkduedate[index] = homeworkduedate;
}
/**
 * @return the quiz
 */
public String getQuiz(int index) {
	return quiz[index];
}
/**
 * @param quiz the quiz to set
 */
public void setQuiz(int index, String quiz) {
	this.quiz[index] = quiz;
}
/**
 * @return the quizstate
 */
public boolean getQuizstate(int index) {
	return quizstate[index];
}
/**
```

```
	 * @param quizstate the quizstate to set
	 */
	public void setQuizstate(int index, boolean quizstate) {
		this.quizstate[index] = quizstate;
	}
	/**
	 * @return the quizduedate
	 */
	public int getQuizduedate(int index) {
		return quizduedate[index];
	}
	/**
	 * @param quizduedate the quizduedate to set
	 */
	public void setQuizduedate(int index, int quizduedate) {
		this.quizduedate[index] = quizduedate;
	}
	/**
	 * @return the test
	 */
	public String getTest(int index) {
		return test[index];
	}
	/**
	 * @param test the test to set
	 */
	public void setTest(int index, String test) {
		this.test[index] = test;
	}
	/**
	 * @return the teststate
	 */
	public boolean getTeststate(int index) {
		return teststate[index];
	}
	/**
	 * @param teststate the teststate to set
	 */
	public void setTeststate(int index, boolean teststate) {
		this.teststate[index] = teststate;
	}
	/**
	 * @return the testduedate
	 */
	public int getTestduedate(int index) {
		return testduedate[index];
	}
	/**
	 * @param testduedate the testduedate to set
	 */
	public void setTestduedate(int index, int testduedate) {
		this.testduedate[index] = testduedate;
	}
}
```

C2 Handling Errors

#	Error	Sample Potential Error	Error Handling

1	Input Mismatch Exception	`input = sc.nextInt();` Since sc.nextInt() only accepts integer values the user might accidentally enter a non-integer value such as a letter.	`try {`
			`input = sc.nextInt();`
			`}`
			`catch (InputMismatchException e)`
			`{`
			`sc.nextLine();`
			`}`
			Try and Catch is used to prevent the program from crashing if such an error occurs.

2	IOException	`FileWriter write2 = new FileWriter (name);`
		`BufferedWriter write = new BufferedWriter (write2);`
		
		The program requires reading data from a saved file, if the saved file does not exist or if the program does not have permission to access that file an IOException will occur.
			`try {` `FileWriter write2 = new FileWriter (name);`
			`BufferedWriter write = new BufferedWriter (write2);}`
			`catch (IOException e)`
			`{`
			`}`
			Try and Catch is used to prevent the program from crashing if such an error occurs.

3	Unexpected Errors	Unexpected errors can occur	Two different precautions were implemented.
			1. `saveDate(`*`date`*`, currentDay);`
			The save file is updated every time a change is made rather than when the program exists. So an unexpected error that causes the program to become unpredictable will not result in a lose of data.
			2. `try{`
			`}`
			`catch (Exception e){`
			`System.`*`out`*`.println("An unexpected error occured");`
			`}`
			This try catch combination will catch all errors and prevent the program from

			crashing even if something unexpected occurs.

C3 Success of the Program

The success of the program will be evaluated based on the goals set out in A2. The set of goals and objectives from A2 are:

1. User can input as much information as needed for each school work/activity
2. Information can be deleted
3. Information can be viewed at a later time
4. Information can be sorted relative to both date assigned and date due.
5. Information can be searched relative to due date
6. Homework and assignments can be marked as complete
7. List of school work/activities due in the next 7 days can be generated
8. Have indicators such as “success” when an action is performed
9. When inappropriate data is inputted the program will re-prompt the user for appropriate data.
10. Inappropriate input by user will not crash the program
11. Actions aside from exit will always loop back to the main menu.

1. This goal is reached because information is stored as a String which can have (memory allowing) a size of 2^{31}-1. More than enough space for any useful information.
2. The information can be edited to become blank achieving the effect of deletion as it allows the program to write over it later if space runs out.
3. The edit, quick check, and check function allows the user to view information stored at a later time.
4. This goal was not achieved because it is found to be redundant because the user would only care about the due date, the date assigned is not important.
5. The check function finds the information relative to due date.
6. The user can mark homework as complete with the edit function.
7. The quick check function generates a list of school work due in the next 7 days
8. The program confirms adding information and editing information
9. Re-prompts are used in some functions such as getDate();
10. Try catch are implemented to prevent crashing
11. The main menu is in an infinite loop.

Stage D – Documentation

Peng Fei Wang

Stage D - Documentation

D1 Including an annotated hard copy of the test output

Functionality	Purpose	Input	Expected Output	Output
Loading Date	Getting the Current Date from the User (With appropriate input)	1 1	Please Select the Current Month: 1. January 2. February 3. March 4. April 5. May 6. June 7. July 8. Auguest 9. September 10. October 11. November 12. December Please Enter Your Choice 1 Please Enter the Present Day of the Month: 1	Please Select the Current Month: 1. January 2. February 3. March 4. April 5. May 6. June 7. July 8. Auguest 9. September 10. October 11. November 12. December Please Enter Your Choice 1 Please Enter the Present Day of the Month: 1
Loading Date	Getting the Current Date from the User (With inappropriate input)	-1 hi 24ewd 1 1	Please Select the Current Month: 1. January 2. February 3. March 4. April 5. May 6. June 7. July 8. Auguest 9. September	Please Select the Current Month: 1. January 2. February 3. March 4. April 5. May 6. June 7. July 8. Auguest 9. September

			10. October 11. November 12. December Please Enter Your Choice -1 Please Enter the Present Day of the Month: hi Inappropriate Input Please Select the Current Month: 1. January 2. February 3. March 4. April 5. May 6. June 7. July 8. Auguest 9. September 10. October 11. November 12. December Please Enter Your Choice 24ewd Inappropriate Input Please Select the Current Month: 1. January 2. February 3. March 4. April 5. May 6. June 7. July 8. Auguest 9. September 10. October 11. November 12. December Please Enter Your Choice 1 Please Enter the Present Day of the Month: 1	10. October 11. November 12. December Please Enter Your Choice -1 Please Enter the Present Day of the Month: hi Inappropriate Input Please Select the Current Month: 1. January 2. February 3. March 4. April 5. May 6. June 7. July 8. Auguest 9. September 10. October 11. November 12. December Please Enter Your Choice 24ewd Inappropriate Input Please Select the Current Month: 1. January 2. February 3. March 4. April 5. May 6. June 7. July 8. Auguest 9. September 10. October 11. November 12. December Please Enter Your Choice 1 Please Enter the Present Day of the Month: 1
Add Information	User can input as much information as needed	1 1 1	1. Add Information 2. Retrive/Edit Previous Information 3. Quick Check	1. Add Information 2. Retrive/Edit Previous Information 3. Quick Check

	for each schoolwork/activity	Page # 32 questions 1-4	4. Search for SchoolWork/Activity with respect to due date 5. Exit Enter your option: 1 Add Information: Which category does the new school work/activity fall under? 1. Homework 2. Assignment 3. Quiz 4. Test 5. Return to Main Menu Please Enter Your Choice: 1 New Homework Is the homework due? 1. Tomorrow 2. The Day After Tomorrow 3. Other 1 Please Enter Information Concerning this Homework: Page # 32 questions 1-4 Action Completed	4. Search for SchoolWork/Activity with respect to due date 5. Exit Enter your option: 1 Add Information: Which category does the new school work/activity fall under? 1. Homework 2. Assignment 3. Quiz 4. Test 5. Return to Main Menu Please Enter Your Choice: 1 New Homework Is the homework due? 1. Tomorrow 2. The Day After Tomorrow 3. Other 1 Please Enter Information Concerning this Homework: Page # 32 questions 1-4 Action Completed
Add information	Adding Information to homework (inappropriate input When inappropriate data is inputted the program will re-prompt the user for appropriate data) (Inappropriate input by user will not crash the program)	-1 1 1 efd	Add Information: Which category does the new school work/activity fall under? 1. Homework 2. Assignment 3. Quiz 4. Test 5. Return to Main Menu Please Enter Your Choice: -1 Inappropriate Input Main Menu ---------- ----------	Add Information: Which category does the new school work/activity fall under? 1. Homework 2. Assignment 3. Quiz 4. Test 5. Return to Main Menu Please Enter Your Choice: -1 Inappropriate Input Main Menu ---------- ----------

			---------- 1. Add Information 2. Retrive/Edit Previous Information 3. Quick Check 4. Search for SchoolWork/Activity with respect to due date 5. Exit Enter your option: 1 Add Information: Which category does the new school work/activity fall under? 1. Homework 2. Assignment 3. Quiz 4. Test 5. Return to Main Menu Please Enter Your Choice: 1 New Homework Is the homework due? 1. Tomorrow 2. The Day After Tomorrow 3. Other efd Inappropriate input	---------- 1. Add Information 2. Retrive/Edit Previous Information 3. Quick Check 4. Search for SchoolWork/Activity with respect to due date 5. Exit Enter your option: 1 Add Information: Which category does the new school work/activity fall under? 1. Homework 2. Assignment 3. Quiz 4. Test 5. Return to Main Menu Please Enter Your Choice: 1 New Homework Is the homework due? 1. Tomorrow 2. The Day After Tomorrow 3. Other efd Inappropriate input
Retrieve/edit Previous Data	Edititng previously written information (Have indicators such as “success” when an action is performed) (Homework and assignments can be marked as complete) (Information can be viewed at a later time)	2 1 1 1	1. Add Information 2. Retrive/Edit Previous Information 3. Quick Check 4. Search for SchoolWork/Activity with respect to due date 5. Exit Enter your option: 1 Add Information: Which category does the new school work/activity fall under? 1. Homework	1. Add Information 2. Retrive/Edit Previous Information 3. Quick Check 4. Search for SchoolWork/Activity with respect to due date 5. Exit Enter your option: 1 Add Information: Which category does the new school work/activity fall under? 1. Homework

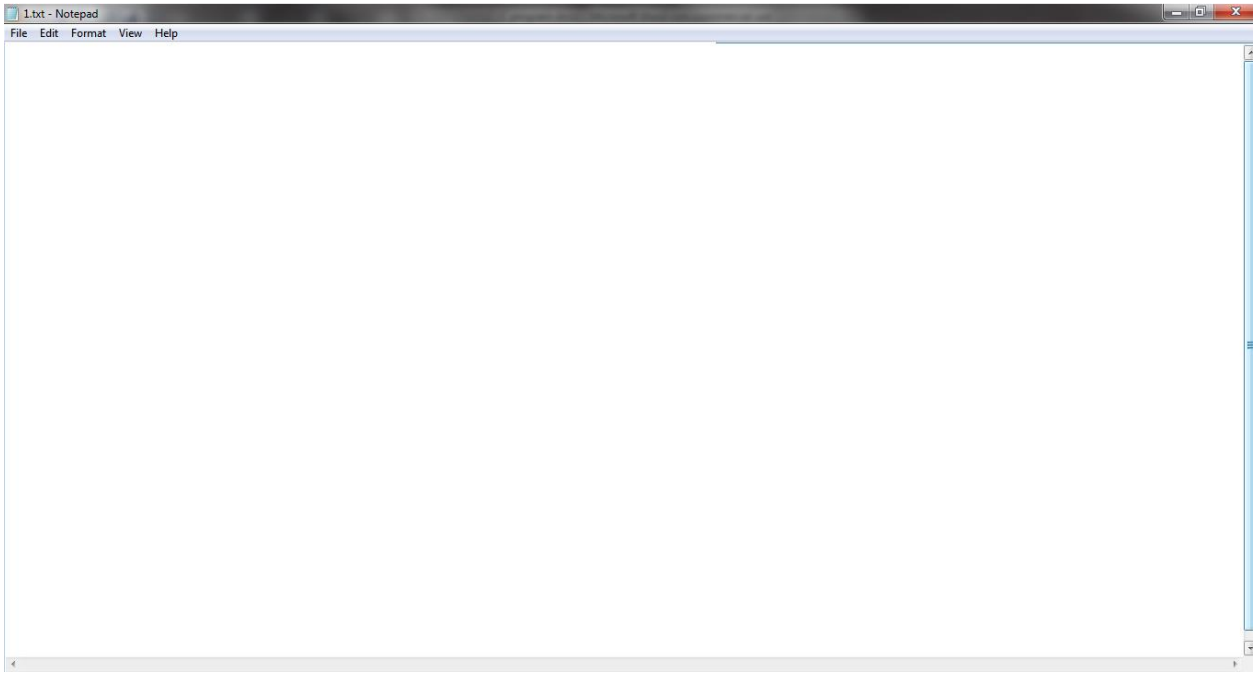
			2. Assignment 3. Quiz 4. Test 5. Return to Main Menu Please Enter Your Choice: 1 New Homework Is the homework due? 1. Tomorrow 2. The Day After Tomorrow 3. Other 1 Please Enter Information Concerning this Homework: Page # 32 questions 1-4 Action Completed Main Menu ---------- 1. Add Information 2. Retrive/Edit Previous Information 3. Quick Check 4. Search for SchoolWork/Activity with respect to due date 5. Exit Enter your option: 2 Which Day would you like to revisit? 1. Today 2. Yesterday 3. The Day Before Yesterday 4. Other 1 Which category does the new school work/activity fall under? 1. Homework 2. Assignment 3. Quiz	2. Assignment 3. Quiz 4. Test 5. Return to Main Menu Please Enter Your Choice: 1 New Homework Is the homework due? 1. Tomorrow 2. The Day After Tomorrow 3. Other 1 Please Enter Information Concerning this Homework: Page # 32 questions 1-4 Action Completed Main Menu ---------- 1. Add Information 2. Retrive/Edit Previous Information 3. Quick Check 4. Search for SchoolWork/Activity with respect to due date 5. Exit Enter your option: 2 Which Day would you like to revisit? 1. Today 2. Yesterday 3. The Day Before Yesterday 4. Other 1 Which category does the new school work/activity fall under? 1. Homework 2. Assignment 3. Quiz

			4. Test 5. Return to Main Menu Please Enter Your Choice: 1 Please Choose which Homework to Edit 1. Page # 32 questions 1-4 2. 3. 4. 5. 6. Return to Main Menu 1 Please Select Option 1. Check Completed 2. Edit Information 2 Enter Revised Information Page # 32 question 1-5 Action Completed	4. Test 5. Return to Main Menu Please Enter Your Choice: 1 Please Choose which Homework to Edit 1. Page # 32 questions 1-4 2. 3. 4. 5. 6. Return to Main Menu 1 Please Select Option 1. Check Completed 2. Edit Information 2 Enter Revised Information Page # 32 question 1-5 Action Completed
Check for Homework due in next 7 days	Check for Homework due in next 7 days (List of school work/activities due in the next 7 days can be generated)	3 1	1. Add Information 2. Retrive/Edit Previous Information 3. Quick Check 4. Search for SchoolWork/Activity with respect to due date 5. Exit Enter your option: 3 Quick Check 1. All homework due in the next 7 days 2. All assignments due in the next 7 days 3. All quizzes occurring in the next 7 days 4. All tests occurring in the next 7 days 1 List of Homework due in the next 7 days:	1. Add Information 2. Retrive/Edit Previous Information 3. Quick Check 4. Search for SchoolWork/Activity with respect to due date 5. Exit Enter your option: 3 Quick Check 1. All homework due in the next 7 days 2. All assignments due in the next 7 days 3. All quizzes occurring in the next 7 days 4. All tests occurring in the next 7 days 1 List of Homework due in the next 7 days:

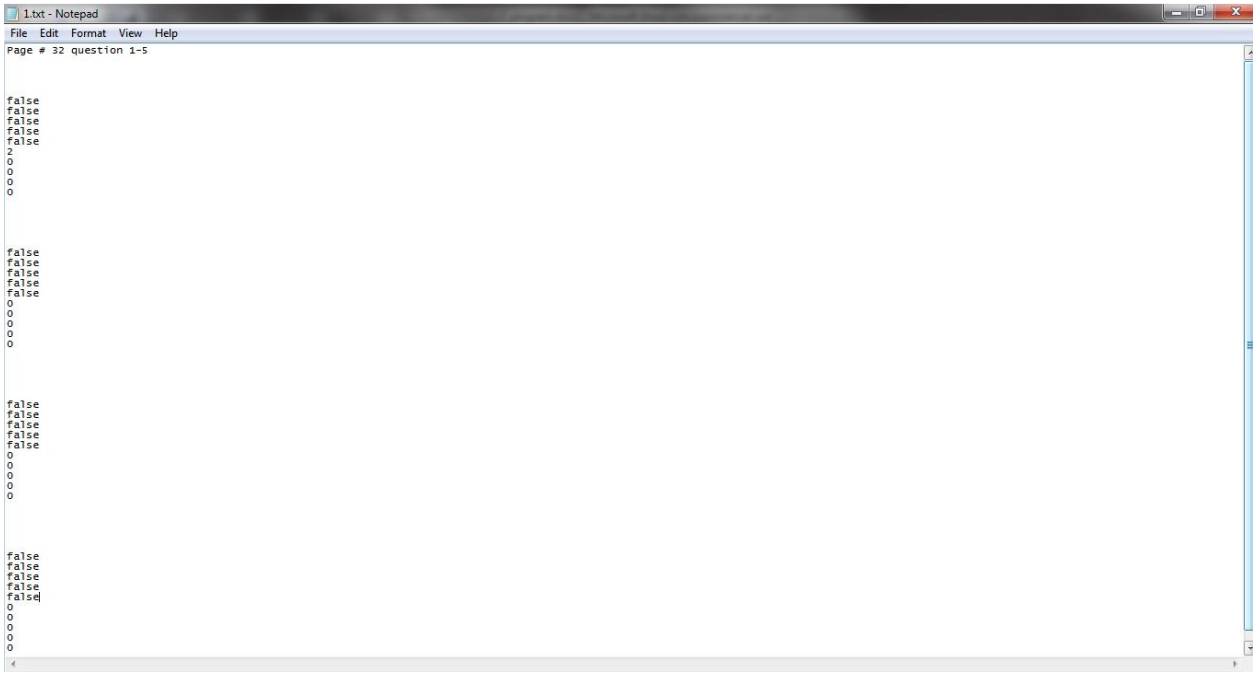
			1. Page # 32 question 1-5 Due: January 2 unfinished Enter an Integer to Return to Main Menu	1. Page # 32 question 1-5 Due: January 2 unfinished Enter an Integer to Return to Main Menu
Search for SchoolWork/Activity with respect to due date	Search for SchoolWork/Activity with respect to due date (Information can be searched relative to due date)	4 1 1	1. Add Information 2. Retrive/Edit Previous Information 3. Quick Check 4. Search for SchoolWork/Activity with respect to due date 5. Exit Enter your option: 4 Search for school work/activity in respect to due date: Which day is the school work/activity due? 1. Tomorrow 2. The Day After Tomorrow 3. Other 1 1. Display only Homework 2. Display only Assignment 3. Display only Quiz 4. Display only Test 1 List of Homework due on specified date: 1. Page # 32 question 1-5 Due: January 2 unfinished Enter an Integer to Return to Main Menu	1. Add Information 2. Retrive/Edit Previous Information 3. Quick Check 4. Search for SchoolWork/Activity with respect to due date 5. Exit Enter your option: 4 Search for school work/activity in respect to due date: Which day is the school work/activity due? 1. Tomorrow 2. The Day After Tomorrow 3. Other 1 1. Display only Homework 2. Display only Assignment 3. Display only Quiz 4. Display only Test 1 List of Homework due on specified date: 1. Page # 32 question 1-5 Due: January 2 unfinished Enter an Integer to Return to Main Menu

Proof of IO:

Saved File Before:



Saved File After:



D2 Evaluating Solutions:

Overview:

The solution does solve the problems presented initially. By giving the user the ability to store information to a text file, the user is able to enter a string the size of 2^{31} or until virtual memory is overloaded. Regardless that should be more than enough for practical uses. The information stored can be added and edited at another time. In addition the search function allows the user to quickly identify school work due in the near future. Indicators at the end of the program tell the user that a process is complete, and finally errors are taken account to prevent crashing of the program and in some cases looped to allow re-entry.

Limitations and possible improvements:

At this moment the agenda does not carry other important information such as which day a particular date is (ie Monday, Tuesday, etc), it does not provide information concerning holidays, late starts, and it does not tell students which day (ie Day 1, Day 2, Day 3, Day4 (different class schedule for different day)). The hard cap of 5 homework/assignment/test/quiz a day should be augmented to be a dynamic list to make information storage more efficient (there would be no blank lines in the save files) and give users more flexibility. The search function should have an option to search for all school work rather than just the specific categories. The largest improvement would be a visual representation of a calendar because the present solution requires the user to know the precise present date. With a visual calendar displayed, the user would be able to better locate the present date. The introduction of division by subject could also be implemented as different students order their agenda differently and this would give students more flexibility. The program itself should also have a function that clears the saved files in the event of the student going to a new school year.

Changes made to the Initial Solution:

Initially it was planned to have the days stored in separate month files to cut down on the number of save files and not have to convert from month, day to an absolute number representing the day. However this was more trouble than the benefits because of the quick check method. By having to search seven continuous days it is possible that the program would have to access two different month saved files. By changing to just a saved file per day, only one data file would have to be stored in the memory as opposed to over 60 (2 months). This will allow the program to operate faster and allow more strings to be entered into a particular day before the program runs out of virtual memory. The assigned date variable was removed because the name of the saved file corresponds to the date assigned, thus making it redundant. The save function was also changed so that the programmed saved after every change (adding information and edit). This minimizes the loss of data as opposed to the method outline previously which was saving only when the program exits.

Effectiveness:

The program accomplishes most of the goals and objectives set out from A2. User can input as much information as needed for each school work/activity, information can be deleted, information can be viewed at a later time. Information can be searched relative to due date, homework and assignments can be marked as complete, list of school work/activities due in the next 7 days can be generated, have indicators such as “success” when an action is performed, when inappropriate data is inputted the program will re-prompt the user for appropriate data. Inappropriate input by user will not crash the program; actions aside from exit will always loop back to the main menu. The size of storage and the search function gives this solution a distinct advantage over the traditional paper counterpart.