CS 362 – Software Engineering 2
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1. Program Descriptions

1.1. Details of the Calendar Application

What the program is supposed to do?

This Calendar App allows user to list, add, update, and remove appointments in Gregorian Calendar. It also save the data into a XML file.

What does each class do?

Class	What it does
CalendarMain	The main class of the whole program. Initiates the program and interact with user input; and incooperate other classes to process the data
Appt	Data model class for Appointment entity. Contains information about Appointments and handle all things related to Appointments
CalDay	Data model class for a day in the Gregorian calendar. Contains information about the Appointments and handle all things related to a calendar day.
CalendarUtil	Has utility methods related to calendar processing such as IsLeapYear and NumDaysInMonth to be used in other classes' implementation so that we don't litter unrelated code in other classes
DataHandler	Handle data with XML files (save and load)
DateOutOfRangeException	This class extend the abstract class Exception in java to handle and to be thrown out by other classes in this app implementation.
XmlParserErrorHandler	Handle error and do further action when a XmlPerserError is thrown.

Source Line of Code: 631
Number of class: 7
Number of methods: 76

1.2. Method Details

Method name	Pre-condition	What does it do?	Post-condition

Appt class			
Appt(...)	None	Construct a new appointment that has no start time on a certain date inputed from user	A new Appt object is created
setValid(...)	an Appt object exists and has date, month, year initiated	Determine if this Appointment is valid or not based on its date, month, and year	The valid attribute of this Appt object is set
setRecurrence(...)	the Appt is valid	Sets a recurring date for an Appt object (an appointment)	The Appt has a recurring date to appear on the calendar
setRecurDays(...)	the Appt is valid, and setRecurrence(…) method was called before	Set the attribute recurDays to a value inputed from user	the recurDays attribute of Appt object is set
CalDay			
CalDay(...)	None	Default construct a CalDay object with valid set to default	a CalDay object with valid set to default is created
addAppt(...)	A CalDay object has been constructed	Add an appointment to the calendar day object	An appointment is added to the calendar day object
CalendarUtil			
IsLeapYear(...)	a valid year is input	Check if the given year is a leap year or not	return true or false indicating if the input year a leap year (return true) or not (false)
DataHandler			
getApptRange(...)	The Appt is valid	Retrieves a range of appointment between its two dates (begin date and end date)	Return a list of CalDay object that are in between the specified range
getApptOccurences(...)	The Appt is valid, and the input days is valid	Constructs a list of Calendar that represent a day when the Appt occurs	Return a list of Calendar that represent a day when the Appt occurs. The days are guaranteeed to be between firstDay and lastDay and they are in order
getNextApptOccurences(...)	The Appt’s	Calcuates the next	Return null if the

	occurence date has been set. The Appt is valid, and the input day is valid	recurring day in the given appointment	appointment does not recur or the date cannot be calculated for any reason; otherwise, return a corresponding GregorianCalendar object.
saveAppt(...)	The Appt object is valid	Save the given Appointment's information to a XML tree data structure	Return true if the appointment was saved correctly; otherwise, return false

2. Bug Descriptions

Bug #	Method Name	Line #	What I've changed	Incorrect result
1	Appt.setValid	180	change || to &&	The app accepts invalid appointment start day because the check condition will always be evaluated to false since no day is both < 1 and > NumDaysInMonth
2	DataHandler.getNextApptOccurence	334-336	add an "if trap" that make the function always return **null**	I cannot make the app display the next appointment of a recurrent appointment. It return error.
3	Appt.isOn	288	always return true	the Calendar app always output no appointment at every day on the calendar
4	Appt.getStartDay	249	change return value to -1	the calendar app always return -1 for day values.
5	CalDay.CallDay()	67	change valid = true to valid = false	The new calendar day is always "invalid". So the Calendar App throw exception at Runtime: The number of appointments between 04/13/2018 (inclusive) and 04/14/2018 (exclusive) Exception in thread "main" java.lang.NullPointerException at calendar.CalDay.getFullInfomrationApp(CalDay.java:214) at calendar.CalendarMain.main(CalendarMain.java:171)