

## SOMMARIO

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# PRE GAME

## CONVENTIONS AND TECNICAL SET-UP

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- Programming language: Java;
- IDE: NetBeans;
- Graphic interface: JavaFX;
- Testing: JUnit 4;
- SCRUM design: Trello;
- Coding conventions: Oracle Java coding conventions
  - Methods and variables: lowerCamelCase;
  - Classes, interfaces, exceptions: CamelCase;
  - Constants: CAPITAL LETTERS.

## ARCHITECTURE

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For this project was choosen the **Model-View-Control (MVC)** architectural pattern. In which there are three types of components:

- Model: Set of classes, specifically a subsystem that handles the application logic independently of the user interface;
- View: Takes care of displaying the information received from the model;
- Controller: Translates the input (e.g. pressing a button) provided by the user into requests that are made to the Model and that can lead to an update of the View.

## INTERFACE

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<input type="checkbox"/>	NAME	TRIGGER	ACTION	STATE
<input checked="" type="checkbox"/>	WORK ALARM	TIME "07:00"	PLAYSOUND "RELAX"	ACTIVE
<input type="checkbox"/>	MEETING REMINDER	TIME "18:00"	NOTIFICATION "MEETING"	DEACTIVATED
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				
<input type="checkbox"/>				

RULE NAME

CHOOSE A TRIGGER ▾ +

CHOOSE AN ACTION ▾ +

COMMIT

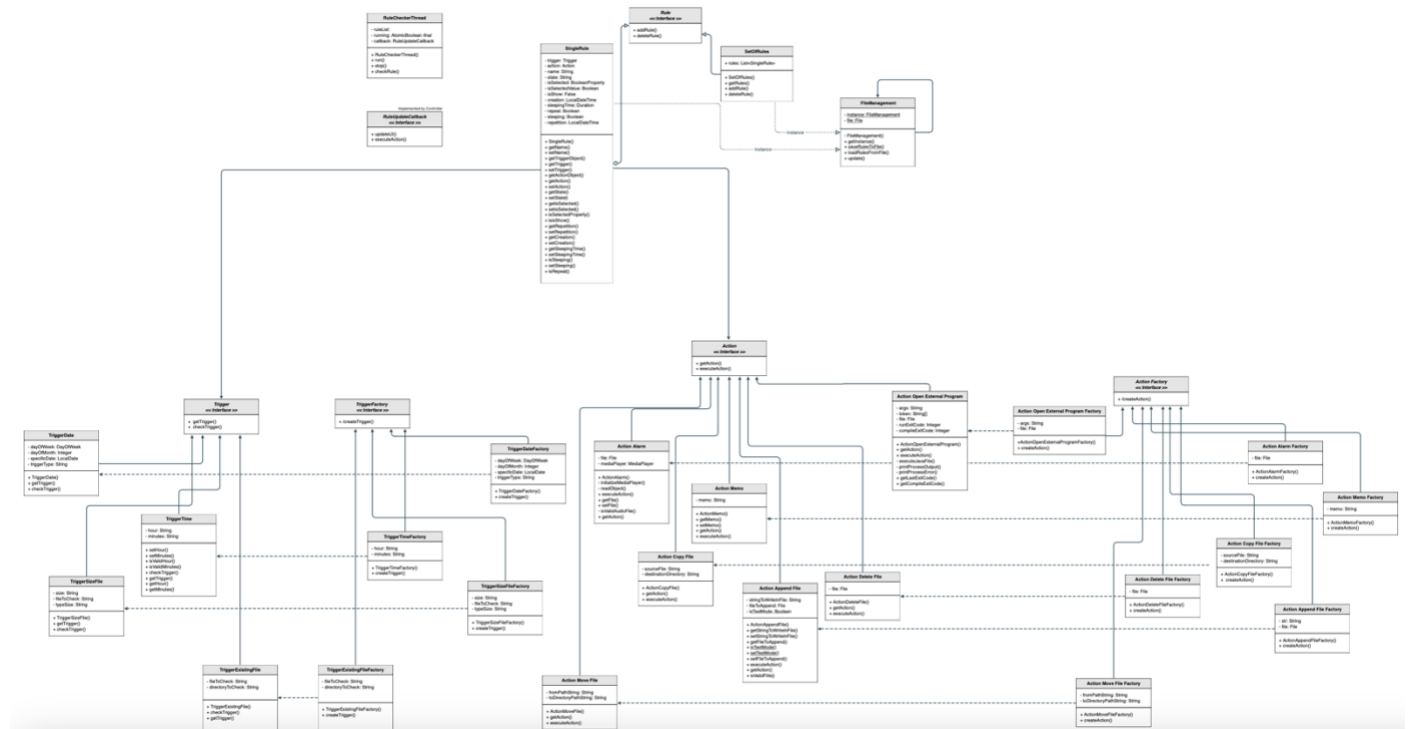
ADD

DELETE

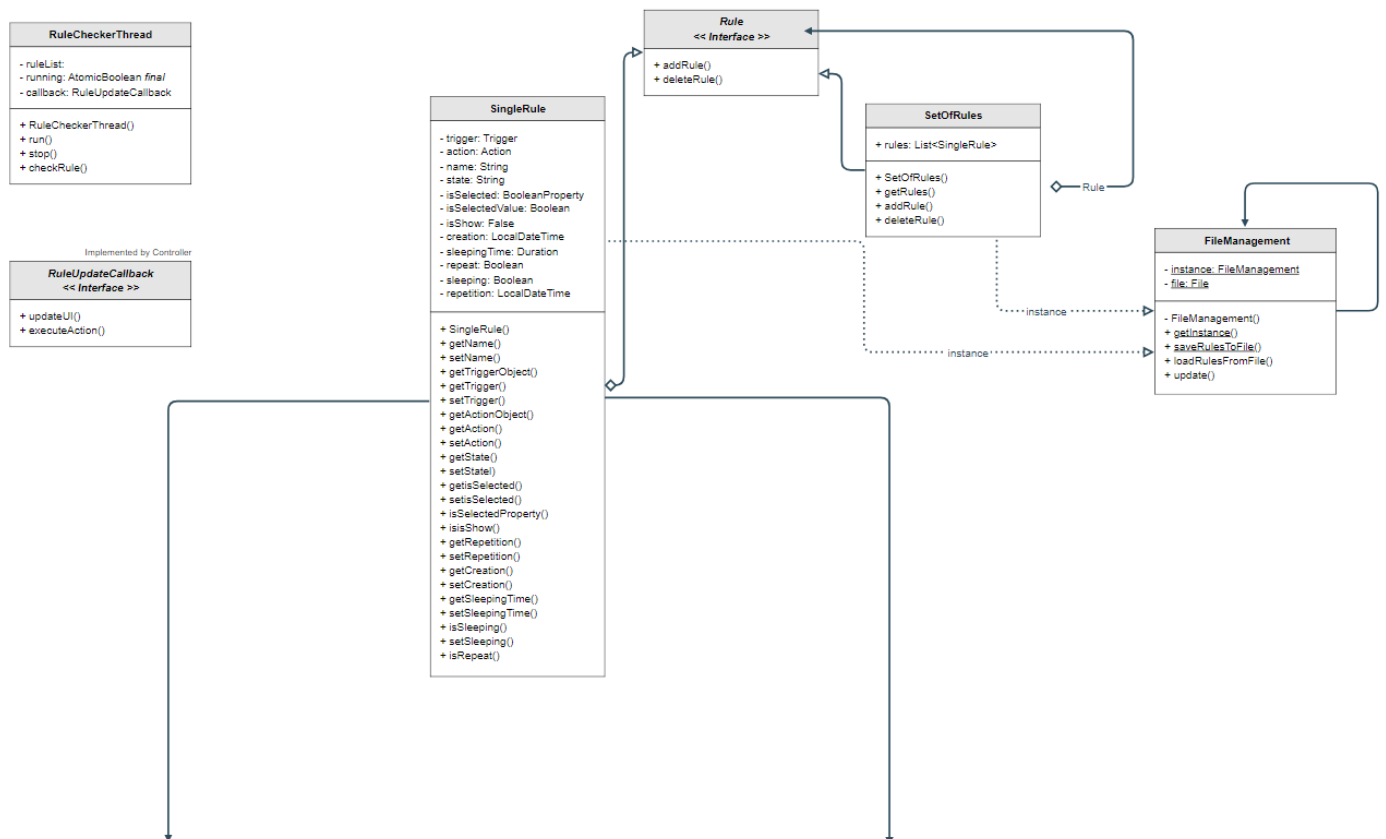
ON/OFF

## UML DIAGRAM

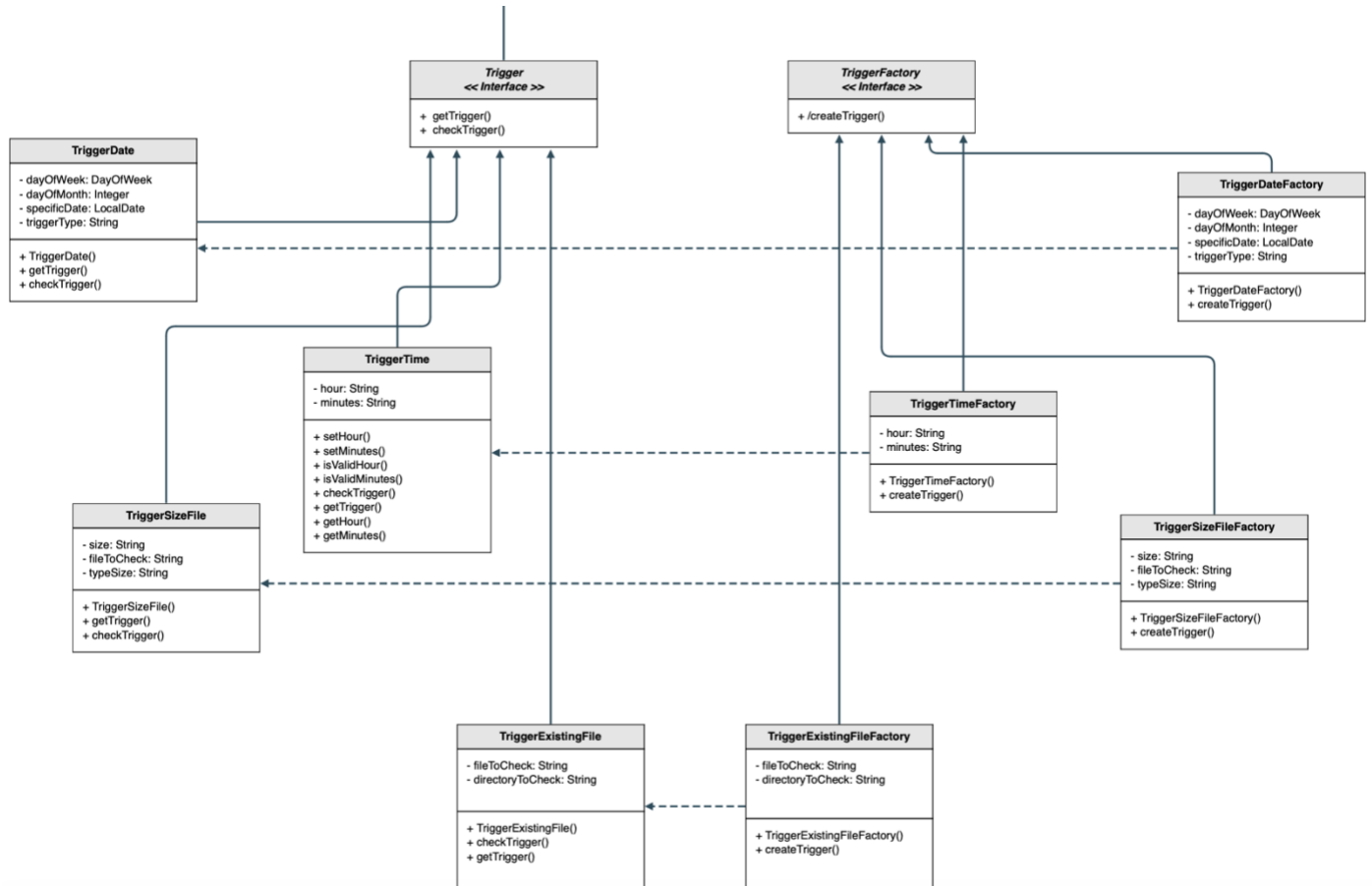
WHOLE UML



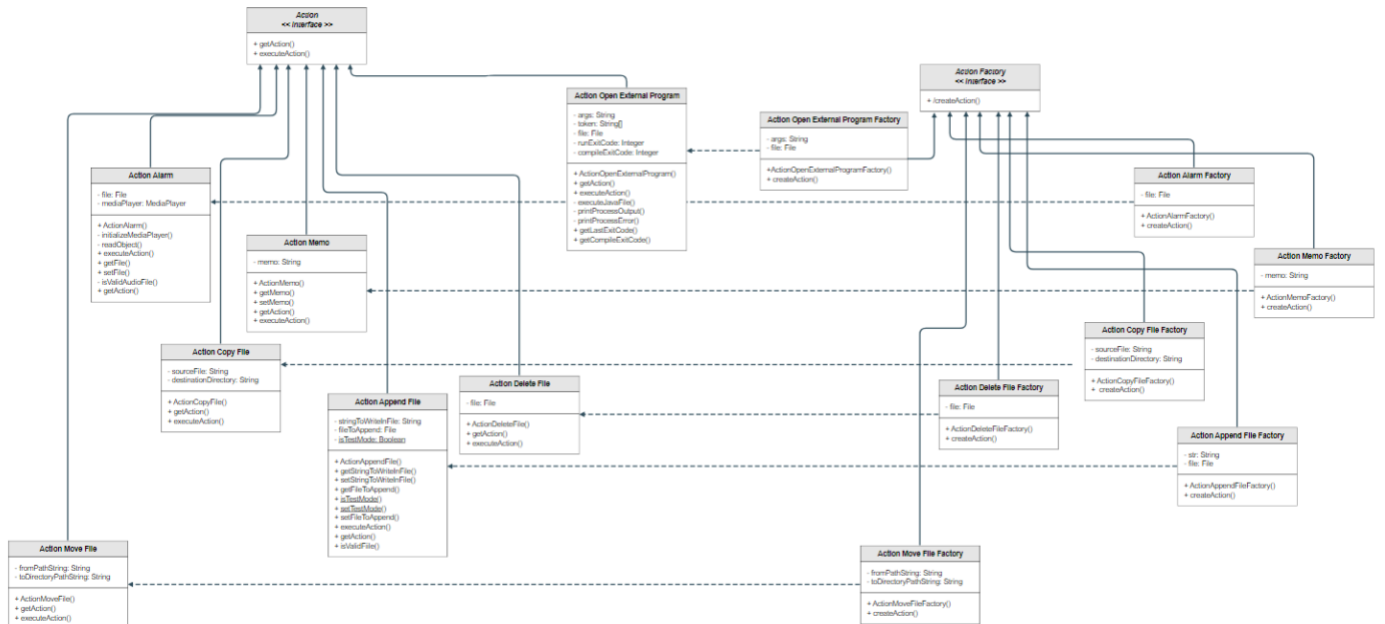
## UML SEPARATED PART-RULE



## UML SEPARATED PART-TRIGGER



## UML SEPARATED PART-ACTION



## PRODUCT BACKLOG

Priority: High, Medium-high, Medium, Medium-low, Low

#ID	DESCRIPTION	CATEGORY	DEPENDENCIES	STORY POINT	ACCEPTANCE CRITERIA	PRIORITY	STATUS
000	The application is a single-user desktop program that allows the creation of rules with triggers based on a specific time. When the current time reaches the trigger, the program performs an action, such as playing an audio or displaying a message in a dialogue box. This control occurs every few seconds.	User epic	-	-	-	-	-
001	As user, I want to create a set of rules, So that I can automate a certain action.	User story	-	8	<ul style="list-style-type: none"> <li>• <b>When</b> the user selects the alarm action, <b>I want</b> the fields to appear for choosing the time and the audio file.</li> <li>• <b>When</b> the user selects the reminder action, <b>I want</b> the fields to appear to choose the time and to write the text.</li> </ul>	High	Done
002	As user, I want to decide the time at which the action is to be executed, So that the system can automatically check this time and activate the associated rule.	User story	#001	2	<ul style="list-style-type: none"> <li>• <b>When</b> time is reached, <b>I want</b> the action to be executed once.</li> <li>• <b>When</b> an invalid time is entered, <b>I want</b> the rule not to be set.</li> </ul>	High	Done
003	As user, I want messages to be displayed in a dialogue box that requires an explicit action to be closed, So that I cannot miss reminders or alerts.	User story	#001, #002	1	<ul style="list-style-type: none"> <li>• <b>When</b> the time is reached, <b>I want</b> the preset dialog box to be displayed.</li> <li>• <b>As long as</b> the user does not click on the specific button, <b>I want</b> the window to remain open.</li> </ul>	Medium-high	Done
004	As a user, I want to be able to choose an audio file to be played when a rule is activated, So that I can have a customized sound reminder.	User story	#001, #002	3	<ul style="list-style-type: none"> <li>• <b>When</b> the user chooses to set an alarm, <b>I want</b> them to be able to choose an audio file as ringtone.</li> <li>• <b>When</b> the time is reached, <b>I want</b> the sound file chosen by the user to be played.</li> </ul>	Medium-high	Done
005	As user, I want to be able to view past rules at program start-up, So that I can keep track of them.	User story	-	5	<ul style="list-style-type: none"> <li>• <b>When</b> the program is started, <b>I want</b> the active/terminated rules to be visible on the application interface.</li> <li>• <b>When</b> I insert a new rule, <b>I want</b> it to be visible in the table and added to the file.</li> </ul>	Medium-high	Done
006	As user, I want to be able to delete previously entered rules, So that I can manage the rules	User story	#005	3	<ul style="list-style-type: none"> <li>• <b>When</b> I have deleted the rule, <b>I want</b> it to no longer be displayed in the interface table.</li> <li>• <b>When</b> I have deleted the rule, <b>I want</b> the action associated with the deleted rule not to be triggered when the time is reached.</li> <li>• <b>When</b> I have deleted the rule, <b>I want</b> that rule to no longer appear in the file.</li> </ul>	Medium-high	Done
007	As user, I want to be able to deactivate and reactivate a previously entered rule, So that I can manage the rules	User story	#005	5	<ul style="list-style-type: none"> <li>• <b>When</b> I have deactivated the rule, <b>I want</b> it to be visible in the interface table with inactive status.</li> </ul>	Medium-high	Done

					<ul style="list-style-type: none"> <li>• <b>When</b> I have deactivated the rule, <b>I want</b> checks on that rule to not occur until I reactivate it.</li> <li>• <b>When</b> I have reactivated the rule, <b>I want</b> it to be visible in the interface table with active status.</li> <li>• <b>When</b> I deactivated or reactivated the rule, <b>I want</b> the status to be updated on the file</li> </ul>		
008	As user, <b>I want</b> to be able to choose whether to repeat a rule several times by specifying a waiting time (in days, hours, minutes), <b>So that</b> I can manage when to repeat the rules.	User story	#001	5	<ul style="list-style-type: none"> <li>• <b>When</b> I have set the rule for once, <b>I want</b> the action to happen at that instant and then be deactivated.</li> <li>• <b>When</b> I have set the rule for several times, <b>I want</b> the action to be re-executed after the waiting time has elapsed.</li> </ul>	Medium	Done
009	As user, <b>I want</b> to be able to write a specific string to the end of a specified file when the rule is activated, <b>So that</b> I can update my files with new information.	User story	-	5	<ul style="list-style-type: none"> <li>• <b>When</b> I have specified the string to be written and the file, <b>I want</b> the string to be written at the end of that file once the trigger is verified.</li> </ul>	Medium	Done
010	As user, <b>I want</b> to be able to copy or move a file from one directory to another when the rule is activated, <b>so that</b> I can manage files according to my needs.	User story	-	5	<ul style="list-style-type: none"> <li>• <b>When</b> I have specified the file and destination directory to which it is to be copied, <b>I want</b> the file to be present on both the source and destination directories once the trigger has been verified.</li> <li>• <b>When</b> I have specified the file and destination directory to which it is to be moved, <b>I want</b> the file to be present only in the destination directory once the trigger has been verified.</li> </ul>	Medium	Done
011	As user, <b>I want</b> to be able to delete a file from a directory when the rule is activated, <b>So that</b> I can maintain the efficiency of my storage space.	User story	-	3	<ul style="list-style-type: none"> <li>• <b>When</b> I choose the file to be deleted in a specific directory, <b>I want</b> the file to no longer be present in that directory once the trigger has occurred.</li> </ul>	Medium	Done
012	As user, <b>I want</b> to be able to execute an external program with specified command line arguments, <b>So that</b> I can automate external processes.	User story	-	13	<ul style="list-style-type: none"> <li>• <b>When</b> I choose an external program and specify the arguments to be passed, <b>I want</b> the program to be executed with these arguments when the trigger is triggered.</li> </ul>	Medium-low	Done
013	As user, <b>I want</b> to be able to choose a specific day of the week or month or a specific date on which the action is to be performed, <b>So that</b> the system can automatically check the day or date and activate the associated rule.	User story	-	3	<ul style="list-style-type: none"> <li>• <b>When</b> I specify the day of the week or month, <b>I want</b> the associated action to be executed when that day arrives.</li> <li>• <b>When</b> I specify the date, <b>I want</b> the associated action to be executed when that date arrives.</li> <li>• <b>When</b> I specify an invalid day or date, <b>I want</b> the associated action not to be executed.</li> </ul>	Medium-low	Done
014	As user, <b>I want</b> to be able to perform a specified action when I choose a	User story	-	5	<ul style="list-style-type: none"> <li>• <b>When</b> I specify a file in a directory, <b>I want</b> the system to perform the action only if that file exists.</li> </ul>	Low	Done

	file with a specified name in a specified directory, <b>So that</b> I can automate file management						
015	As user, I <b>want</b> to be able to specify a file and a maximum size, <b>So that</b> I can manage the storage space.	User story	-	8	• <b>When</b> I select a file, I <b>want</b> the associated action to be executed if it exceeds a size limit.	Low	Done
016	As user, I <b>want</b> certain actions to be automatically executed after the execution of an external program with specific command-line arguments, <b>So that</b> I ensure that these actions are only triggered after the external program has finished with a particular output state.	User story	-	8	• <b>When</b> an external program with specific arguments terminates with a particular output state, I <b>want</b> a specific action to be executed.	Low	To do
TD1	Repetition of code within the SetOfRules class. Specifically: <i>FileManagement.saveRulesToFile(rules);</i>	Technical debt	-	1	-	Medium	Done
TD2	Using the Observer pattern to optimize rule state change on file.	Technical debt	-	3	-	Medium-high	Done
TD3	Re-implement the trigger and action classes using the pattern Factory method.	Technical debt	-	8	-	Medium-high	Done
TD4	Replace the Service with the Thread class in Java	Technical debt	-	8	-	Medium-high	Done
TD5	Replace the ObservableList implementing the pattern Observer	Technical debt	-	13	-	High	Done
B1	Bug in the rule repetition in user story 008.	Bug	-	1	-	Medium-high	Done
B2	Bug in the ActionAppendFile test class	Bug	-	2	-	High	Done
B3	Bug when adding a repeated action before a non-repeated action	Bug	-	2	-	Medium-high	Done

## DEFINITION OF DONE

The definition of done below are valid for all the user stories:

- Tests were performed and successful;
- The product backlog has been updated;
- The code has been reviewed by all other team members;
- The user story implementation meets ALL acceptance criteria.

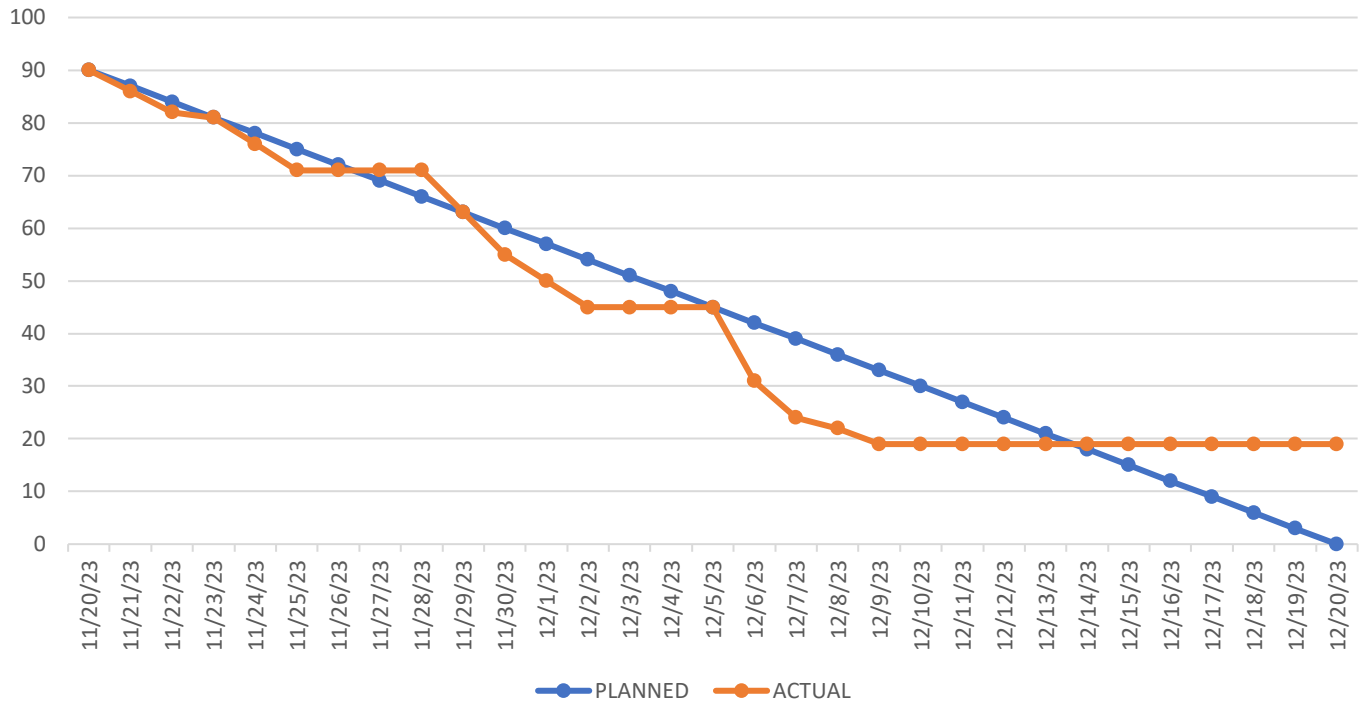
## BURNDOWN CHART

Within the Burndown chart, only the story points of the user stories were included, to see the actual progress of the application. However, days when technical debts and bugs were resolved were specified in a special column, so there was no advancement in the user stories.

TIME		STORY POINT		
DAY	DATE	PLANNED	ACTUAL	NOTE
Monday	20/11/23	90	90	
Tuesday	21/11/23	87	86	
Wednesday	22/11/23	84	82	
Thursday	23/11/23	81	81	
Friday	24/11/23	78	76	
Saturday	25/11/23	75	71	
Sunday	26/11/23	72	71	
Monday	27/11/23	69	71	
Tuesday	28/11/23	66	71	Technical debts and bugs were solved
Wednesday	29/11/23	63	63	
Thursday	30/11/23	60	55	
Friday	01/12/23	57	50	
Saturday	02/12/23	54	45	
Sunday	03/12/23	51	45	
Monday	04/12/23	48	45	Technical debts and bugs were solved
Tuesday	05/12/23	45	45	Technical debts and bugs were solved
Wednesday	06/12/23	42	31	
Thursday	07/12/23	39	24	
Friday	08/12/23	36	22	
Saturday	09/12/23	33	19	
Sunday	10/12/23	30	19	
Monday	11/12/23	27	19	
Tuesday	12/12/23	24	19	
Wednesday	13/12/23	21	19	
Thursday	14/12/23	18	19	
Friday	15/12/23	15	19	
Saturday	16/12/23	12	19	
Sunday	17/12/23	9	19	
Monday	18/12/23	6	19	
Tuesday	19/12/23	3	19	
Wednesday	20/12/23	0	19	



# Burndown chart



# SPRINT 1

## SPRINT BACKLOG

ID	USER STORY/ACCEPTANCE CRITERIA	TASK	STORY POINTS	OWNER	PLANNED HOURS
001	<b>As user,</b> <b>I want</b> to create a set of rules, <b>So that</b> I can automate a certain action.  <ul style="list-style-type: none"> <li>• <b>When</b> the user selects the alarm action, <b>I want</b> the fields to appear for choosing the time and the audio file.</li> <li>• <b>When</b> the user selects the reminder action, <b>I want</b> the fields to appear to choose the time and to write the text.</li> </ul>		8		
		Create an initial UI visible to the user in which there is a table summarizing the rules and a menu for choosing the rule.		Viktor, Pasquale	2
		Implement code to show only the fields pertaining to the alarm setting, if selected.		Sara	3
		Implement the code to display the fields pertaining to the reminder setting, if selected.		Pasquale	3
		Create the interfaces: Rule, Trigger e Action		Elena	2
		Class implementations TriggerTime, ActionMemo, ActionAlarm, SingleRule e SetOfRules		Sara	2
002	<b>As user,</b> <b>I want</b> to decide the time at which the action is to be executed, <b>So that</b> the system can automatically check this time and activate the associated rule.  <ul style="list-style-type: none"> <li>• <b>When</b> time is reached, <b>I want</b> the action to be executed once.</li> <li>• <b>When</b> an invalid time is entered, <b>I want</b> the rule not to be set.</li> </ul>		2		
		Implement in a Service the function that checks, every 10 seconds, whether we have arrived at the time to execute the rule.		Viktor	1,5
		Implement in a Service the function that executes the rule, only once when the time is reached.		Pasquale	2
		Implement the check on the time entered (example of invalid time: 25:25, AB:00, 00:AB, 18:65, etc.).		Viktor	0,5
		Changing the status (active/terminated) of the rule in the table once finished		Elena	1
		Integration of the various tasks		Sara	2
		Creation of test classes for each task		Each member tests what they write	2
003	<b>As user,</b> <b>I want</b> messages to be displayed in a dialogue box that requires an explicit action to be closed, <b>So that</b> I cannot miss reminders or alerts.  <ul style="list-style-type: none"> <li>• <b>When</b> the time is reached, <b>I want</b> the preset dialog box to be displayed.</li> <li>• <b>As long as</b> the user does not click on the specific button, <b>I want</b> the window to remain open.</li> </ul>		1		
		Implementing the dialogue box UI (example: pop-up)		Pasquale	1,5
		Implement the function that opens and closes the dialogue box once we have arrived at the right time, using the function created in user story 002.		Elena	2
		Integration of the various tasks		Viktor	1
004	<b>As a user,</b> <b>I want</b> to be able to choose an audio file to be played when a rule is activated, <b>So that</b> I can have a customized sound reminder.  <ul style="list-style-type: none"> <li>• <b>When</b> the user chooses to set an alarm, <b>I want</b> them to be able to choose an audio file as ringtone.</li> </ul>		3		
		Implement the functionality of choosing the audio file from the user's computer.		Sara	3
		Implement the function to play the audio file.		Elena	3

	<ul style="list-style-type: none"> <li>• <b>When</b> the time is reached, <b>I want</b> the sound file chosen by the user to be played.</li> </ul>	Implement control over the type of file selected by the user, not allowing formats such as .pdf, .txt, .csv, etc.		Viktor	0,5
		Integration of the various tasks		Pasquale	1
		Creation of test classes for each task		Each member tests what they write	1
005	<p>As user, <b>I want</b> to be able to view past rules at program start-up, <b>So that</b> I can keep track of them.</p> <ul style="list-style-type: none"> <li>• <b>When</b> the program is started, <b>I want</b> the active/terminated rules to be visible on the application interface.</li> <li>• <b>When</b> I insert a new rule, <b>I want</b> it to be visible in the table and added to the file.</li> </ul>		5		
		Implement the event that inserts the set rule into the table of active/terminated rules.		Viktor	1,5
		Implement the retrieval of past rules from file, so that they can be inserted into the table once the program is reopened		Pasquale	1,5
		Integration of the various tasks		Elena	1
		Creation of test classes for each task		Each member tests what they write	1

## SPRINT REVIEW

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### User stories done

All planned user stories have been completed: 001, 002, 003, 004, 005.

### User stories added

None

### User stories deleted

None

### Technical debts

- Initially, much of the code was placed in the interface controller, which led to coupling problems and problems in testing the code. Therefore it was decided to divide the methods implemented in the controller, where possible, into special java classes (e.g. for trigger control and action execution).

- There is a repetition of code within the SetOfRules class. Specifically:

*FileManagement.saveRulesToFile(rules);*

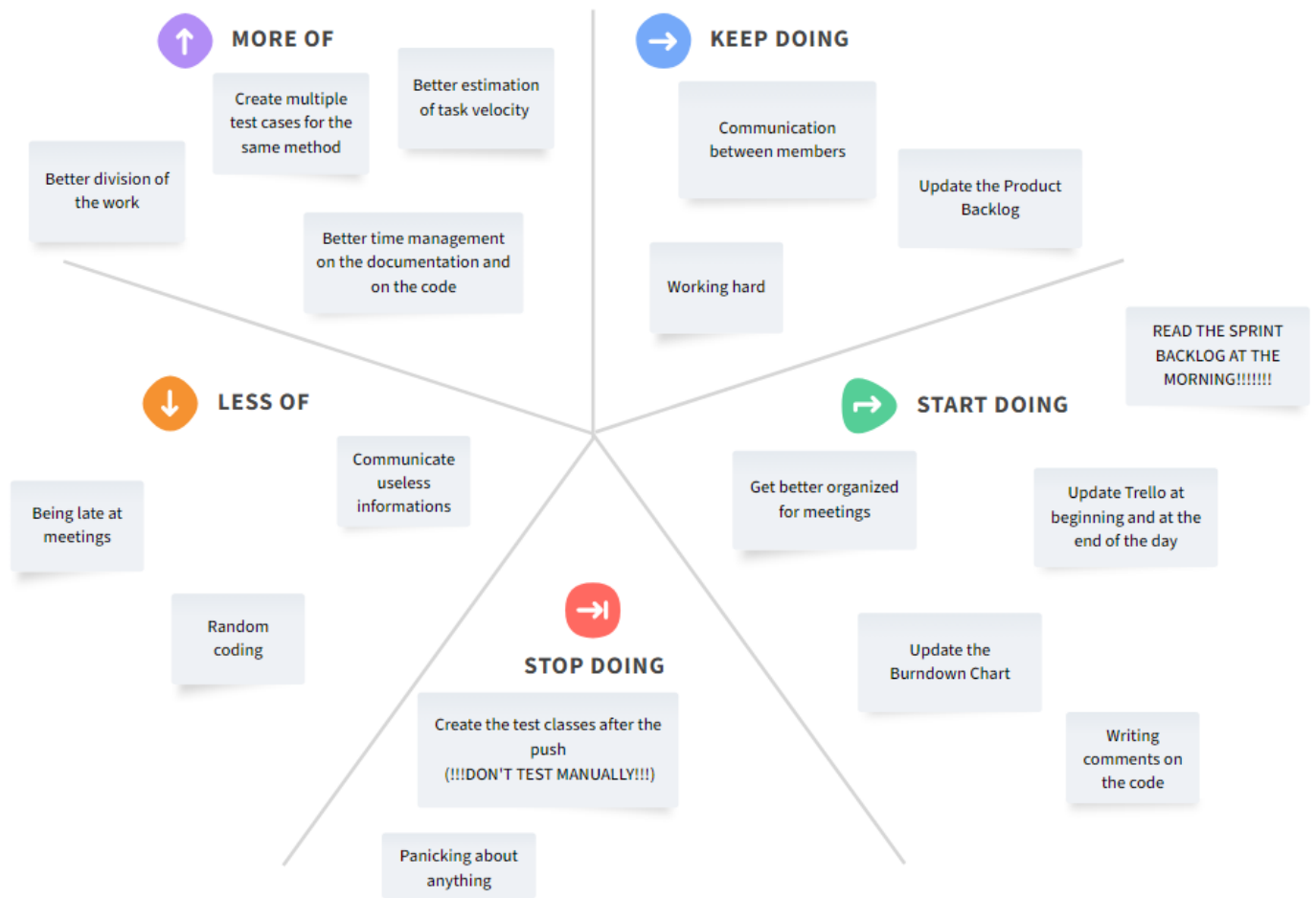
### Bugs

None

### Sprint velocity

Sprint velocity: 19

# SPRINT RETROSPECTIVE



# SPRINT 2

## SPRINT BACKLOG

ID	USER STORY/ACCEPTANCE CRITERIA	TASK	STORY POINTS	OWNER	PLANNED HOURS
006	As user, I want to be able to delete previously entered rules, So that I can manage the rules		3		
	• When I have deleted the rule, I want it to no longer be displayed in the interface table.	Implement the onBtnDelete() method of the Controller class (delete the rule from the list/table/file)		Pasquale	2
	• When I have deleted the rule, I want the action associated with the deleted rule not to be triggered when the time is reached.	Implement cancellation confirmation		Pasquale	2
	• When I have deleted the rule, I want that rule to no longer appear in the file.	Creation of test classes for each task		Each member tests what they write	1
007	As user, I want to be able to deactivate and reactivate a previously entered rule, So that I can manage the rules		5		
	• When I have deactivated the rule, I want it to be visible in the interface table with inactive status.	Implement the onBtnOnOff method of the Controller class (based on the click of the on/off button, the rule shall become active/deactive and change the state of the rule in the file).		Sara	3
	• When I have deactivated the rule, I want checks on that rule to not occur until I reactivate it. • When I have reactivated the rule, I want it to be visible in the interface table with active status. • When I deactivated or reactivated the rule, I want the status to be updated on the file	Creation of test classes for each task		Each member tests what they write	1
008	As user, I want to be able to choose whether to repeat a rule several times by specifying a waiting time (in days, hours, minutes), So that I can manage when to repeat the rules.		5		
	• When I have set the rule for once, I want the action to happen at that instant and then be deactivated.	Add to the UI a checkbox to decide whether to repeat the rule, plus a graphic component to choose after how much to repeat it.		Elena	2
	• When I have set the rule for several times, I want the action to be re-executed after the waiting time has elapsed.	Update the attributes of the SingleRule class and its methods with: a boolean attribute for the checkbox and another to define when it should be repeated		Elena	1
		Update Service to ensure that after the rule has been triggered, if it is to be repeated, it is re-initialized at the next time decided by the user.		Elena	3
		Integration of the various tasks		Elena	1
		Creation of test classes for each task		Each member tests what they write	1
009	As user, I want to be able to write a specific string to the end of a specified file when the rule is activated, So that I can update my files with new information.		5		
	• When I have specified the string to be written and the file, I want the string to be written at the end of that file once the trigger is verified.	Add to the UI the possibility of choosing the action of append to a file, with fields inherent to that action.		Viktor	2
		Implement the controller methods related to the graphic components described above.		Viktor	2
		Create the class ActionAppendFile and implement the executeAction() method.		Viktor	2

		Create the method for writing to files in the class ActionAppendFile.		Viktor	1
		Integration of the various tasks		Viktor	1
		Creation of test classes for each task		Each member tests what they write	1
011	As user, I want to be able to delete a file from a directory when the rule is activated, So that I can maintain the efficiency of my storage space.		3		
	<ul style="list-style-type: none"> <li>When I choose the file to be deleted in a specific directory, I want the file to no longer be present in that directory once the trigger has occurred.</li> </ul>	Add within the UI, in the drop-down menu of the actions, a field for choosing to delete a file.		Sara	0,5
		Add the possibility of choosing all file types (not only mp3, wav, etc.)		Sara	0,5
		Implement the onBtnDeleteFile method to select the file to be deleted.		Sara	1
		Creation of a new class ActionDeleteFile with the necessary methods		Pasquale	0,5
		Implementation of the ActionDeleteFile class with methods that check the selected file and display various messages according to the status of the file (e.g. deleted successfully, file already deleted, etc.).		Pasquale	2
		Integration of the various tasks		Pasquale	1
		Creation of test classes for each task		Each member tests what they write	1
010	As user, I want to be able to copy or move a file from one directory to another when the rule is activated, so that I can manage files according to my needs.		5		
	<ul style="list-style-type: none"> <li>When I have specified the file and destination directory to which it is to be copied, I want the file to be present on both the source and destination directories once the trigger has been verified.</li> <li>When I have specified the file and destination directory to which it is to be moved, I want the file to be present only in the destination directory once the trigger has been verified.</li> </ul>	Adding within the UI the possibility of choosing whether to move a file from one directory to another		Pasquale	1
		Adding within the UI the possibility of choosing whether to copy a file from one directory to another		Sara	1
		Create the class ActionMoveFile and implement the executeAction() method, which allows a file to be moved from one directory to another		Elena	2
		Create the ActionCopyFile class and implement the executeAction() method, which allows a file to be copied from one directory to another		Viktor	2
		Integration of the various tasks		Sara	1
		Creation of test classes for each task		Each member tests what they write	1
TD1	Repetition of code within the SetOfRules class. Specifically: <i>FileManagement.saveRulesToFile(rules);</i>	-	1	Pasquale	0,5
TD2	Using the Observer pattern to optimise rule state change on file.	-	3	Sara	3
B1	Bug in the rule repetition in user story 008.	-	1	Elena	1
B2	Bug in the ActionAppendFile test class	-	2	Pasquale	1

## SPRINT REVIEW

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### User stories done

The following user stories have been completed: 006, 007, 008, 009, 010, 011

### User stories added

The user story 011 was added to the sprint

### User stories deleted

None

### Technical debts

- A code repetition within the SetOfRules class was resolved. Specifically:  
*FileManagement.saveRulesToFile(rules);*
- The technical debt was solved to optimize the change of state of the rule on file, using the Observer pattern.

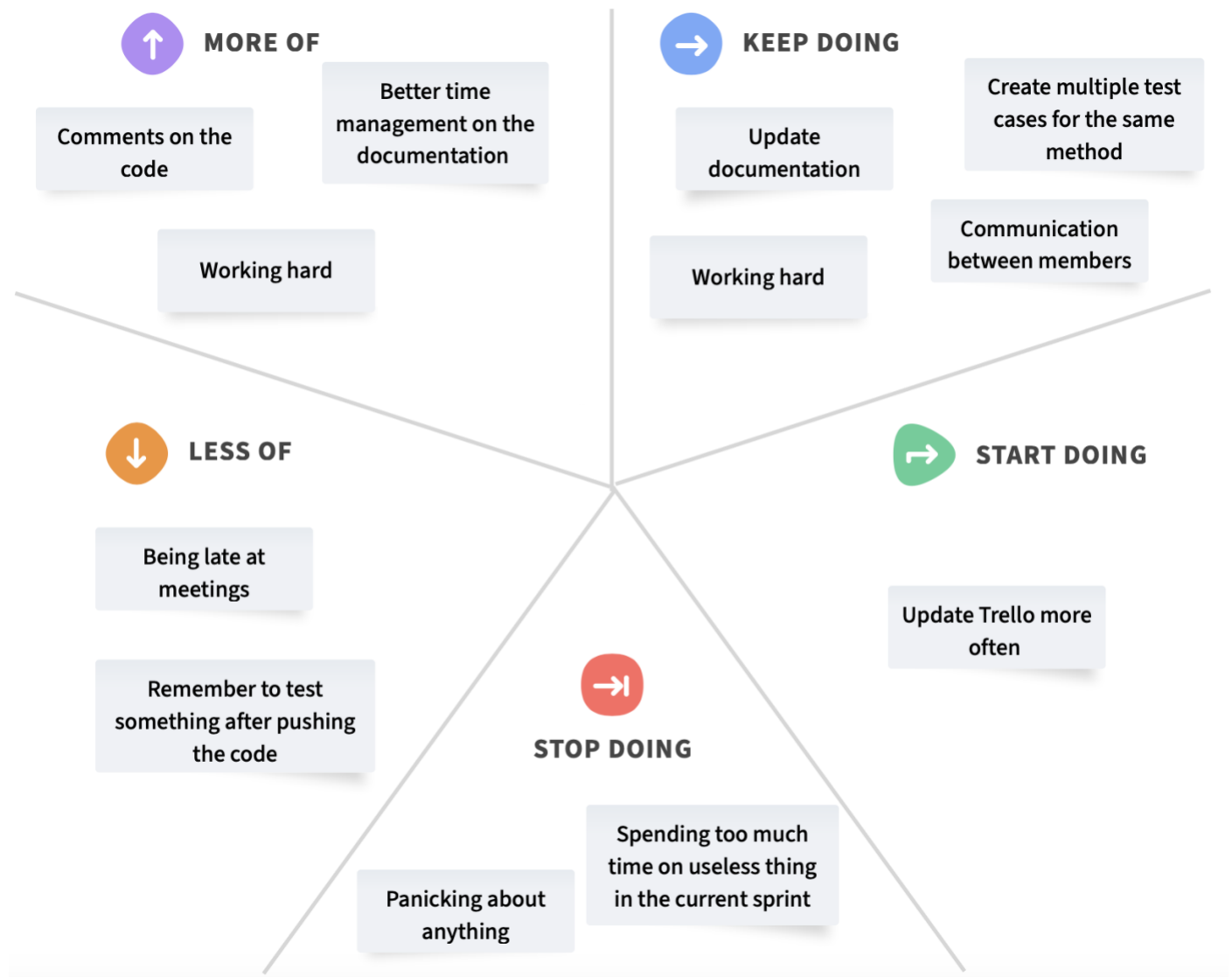
### Bugs

The bug in the rule repetition in user story 008 has been fixed. As once the rule was reactivated, it displayed the dialogue box every 10 seconds.

### Sprint velocity

Sprint velocity: 26 + 7 for bug and technical debts

## SPRINT RETROSPECTIVE





# SPRINT 3

## SPRINT BACKLOG

ID	USER STORY/ACCEPTANCE CRITERIA	TASK	STORY POINTS	OWNER	PLANNED HOURS
012	<b>As user,</b> <b>I want</b> to be able to execute an external program with specified command line arguments, <b>So that</b> I can automate external processes.  • <b>When</b> I choose an external program and specify the arguments to be passed, <b>I want</b> the program to be executed with these arguments when the trigger is triggered.		13		
		Updating the GUI with the necessary components		Sara	2
		Create the ActionOpenExternalProgram class and implement the methods to open an external program with specified line arguments		Sara	2
		Create the ActionOpenExternalProgramFactory class and implement the createAction method		Sara	0,5
		Update the switch case in the createActionFactory method in the Controller class.		Sara	0,5
		Creation of test classes for each task		Each member tests what they write	1
013	<b>As user,</b> <b>I want</b> to be able to choose a specific day of the week or month or a specific date on which the action is to be performed, <b>So that</b> the system can automatically check the day or date and activate the associated rule.  • <b>When</b> I specify the day of the week or month, <b>I want</b> the associated action to be executed when that day arrives. • <b>When</b> I specify the date, <b>I want</b> the associated action to be executed when that date arrives. • <b>When</b> I specify an invalid day or date, <b>I want</b> the associated action not to be executed.		3		
		Update the GUI with TriggerDate input fields and logic.		Elena	1
		Create the TriggerDate class		Elena	2
		Create the TriggerDateFactory class		Elena	0,5
		Update the switch case in the createTriggerFactory method in the Controller class.		Elena	0,5
		Creation of test classes for each task		Each member tests what they write	1
014	<b>As user,</b> <b>I want</b> to be able to perform a specified action when I choose a file with a specified name in a specified directory, <b>So that</b> I can automate file management  • <b>When</b> I specify a file in a directory, <b>I want</b> the system to perform the action only if that file exists.		5		
		Updating the GUI with the necessary trigger components		Viktor	1
		Create the triggerExistingFile class (create the checkTrigger and getTrigger functions)		Viktor	2
		Create the triggerExistingFileFactory class		Viktor	0,5
		Update the switch case in the createTriggerFactory method in the Controller class.		Viktor	0,5
		Creation of test classes for each task		Each member tests what they write	1
015	<b>As user,</b> <b>I want</b> to be able to specify a file and a maximum size, <b>So that</b> I can manage the storage space.  • <b>When</b> I select a file, <b>I want</b> the associated action to be executed if it exceeds a size limit.		5		
		Updating the GUI with the necessary trigger components		Viktor	1
		Create the triggerSizeFile class		Viktor	2
		Create the triggerSizeFileFactory class		Viktor	0,5

		Update the switch case in the createTriggerFactory method in the Controller class.		Viktor	0,5
		Creation of test classes for each task		Each member tests what they write	1
TD3	Re-implement the trigger and action classes using the pattern Factory method.		8		
		Re-implement the action classes using the pattern FactoryMethod		Sara	4
		Re-implement the trigger classes using the pattern FactoryMethod		Elena	4
TD4	Replace the Service with the Thread class in Java		8	Pasquale	4
TD5	Replace the ObservableList implementing the pattern Observer		13	Pasquale	6
B3	Bug when adding a repeated action before a non-repeated action		2	Elena	1

## SPRINT REVIEW

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### User stories done

The following user stories have been completed: 012, 013, 014, 015.

### User stories added

None

### User stories deleted

016

### Technical debts

- Re-implement the trigger and action classes using the pattern Factory method, re-implementing the action and the trigger classes.  
By employing the Factory Method, we aimed to avoid the pitfalls of extensive nested conditionals, which led our code to become difficult to read, understand, and maintain. With this modification, each factory method is responsible for creating a specific type of object, isolating the instantiation logic within its own scope.
- Replace the Service with the Thread class in Java. This decision was made prioritizing the portability of the application. Since Services are specific to JavaFX, we opted to replace them with a Java Thread as it offers a broader portability scope. This adjustment ensures compatibility across different environments and platforms, aligning with our goal of enhancing the application's versatility.
- Replace the ObservableList implementing the pattern Observer. The motivation behind this decision is to enhance the flexibility and maintainability of the codebase. By adopting the Observer pattern, we decouple the components in the system, making it easier to accommodate changes and updates. This modification provides a more modular and extensible solution compared to the direct use of ObservableList, aligning the code with design principles that promote separation of concerns and ease of future enhancements.

### Bugs

We solved a bug in the Thread class where every time we executed a non-repeated rule after a repeated one, it wouldn't be executed.

## Sprint velocity

Sprint velocity: 26 + 31 for bug and technical debts

## SPRINT RETROSPECTIVE

