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## ΑΝΑΠΤΥΞΗ ΛΟΓΙΣΜΙΚΟΥ

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ΠΡΟΓΡΑΜΜΑΤΙΣΤΙΚΗ ΕΡΓΑΣΙΑ ΓΙΑ  
ΤΟ ΑΚΑΔΗΜΑΪΚΟ ΕΤΟΣ 2022-2023

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### ΟΜΑΔΑ

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ΘΑΝΑΣΗΣ ΝΤΕΚΟΣ, ΑΜ:5312

ΑΛΕΞΑΝΔΡΟΣ ΣΙΟΥΛΑΣ, ΑΜ:5349

ΚΩΝΣΤΑΝΤΙΝΟΣ ΧΑΤΖΗΙΩΑΝΝΟΥ,  
ΑΜ:5389

ΤΕΛΙΚΗ ΑΝΑΦΟΡΑ

ΔΕΚΕΜΒΡΙΟΣ 2022

## ΙΣΤΟΡΙΚΟ ΕΚΔΟΣΕΩΝ ΤΗΣ ΠΑΡΟΥΣΑΣ ΑΝΑΦΟΡΑΣ

Ημερομηνία	Έκδοση	Περιγραφή	Συγγραφείς
2022/11/15	v.01	Οργάνωση απαιτήσεων σε use cases	5312-5349-5389
2022/11/25	v.02	Αρχική σχεδίαση κλάσεων	5312-5349-5389
2022/12/4 2022/12/5	v.03	Διορθώσεις στις uses cases. Υλοποίηση μεθόδων των use cases.	5312-5349-5389
2022/12/6	v.04	Διόρθωση μεθόδων, JUNIT testing.	5312-5349-5389
2022/12/10	v.05	JUNIT testing, Σωστή εκτέλεση προγράμματος. Class Diagram.	5312-5349-5389
2022/12/12	v.06	ΤΕΛΙΚΗ ΑΝΑΦΟΡΑ	5312-5349-5389

## 1 ΑΝΑΛΥΣΗ ΑΠΑΙΤΗΣΕΩΝ – USE CASES

Στην παρούσα ενότητα, παρατίθενται οι περιγραφές των use cases με βάση τις καταγεγραμμένες απαιτήσεις.

### ID: UC 1

#### DESCRIPTION AND GOAL

The use case “load”:

The system loads a text file that has the Gantt diagram saved in a delimited form.

#### ACTORS (ESP. PRIMARY ACTOR)

The user

#### PRECONDITIONS

The selected file must have a delimited form of a Gantt diagram for the system to load.

#### BASIC FLOW

1. The use case starts when the user selects a file to load from the taskbar “load file”
2. The system loads the file and displays it on screen

#### EXTENSIONS / VARIATIONS

1. If the file doesn't have a Gantt diagram the program fails to load

### POST CONDITIONS

-File is loaded on screen like a Gantt Diagram

## ID: UC 2

### DESCRIPTION AND GOAL

The use case “getTopLevelTask”:

The system displays all top level tasks sorted.

### ACTORS (ESP. PRIMARY ACTOR)

The user

### PRECONDITIONS

The list of tasks must be sorted & loaded correctly

### BASIC FLOW

The use case start when the user selects “display top level tasks”

Only TopLevelTasks will be displayed on screen with their TaskID TaskText start & end time.(calculations may be required)

### EXTENSIONS / VARIATIONS

If wrong input is provided the program fails.

### POST CONDITIONS

Top level tasks are displayed.

## ID: UC 3

### DESCRIPTION AND GOAL

The use case “getPrefixTask”:

The system finds all the tasks with the given prefix.

### ACTORS (ESP. PRIMARY ACTOR)

The user

### PRECONDITIONS

The list of tasks must be loaded correctly

### BASIC FLOW

The use case start when the user selects “prefix tasks”

The user inputs a prefix and the system returns all tasks that contain the given prefix in their TaskText.

### EXTENSIONS / VARIATIONS

### POST CONDITIONS

Tasks are displayed on screen with the given prefix.

## ID: UC 4

### DESCRIPTION AND GOAL

The use case “getTaskWithID”:

The system displays the task with the given ID

### ACTORS (ESP. PRIMARY ACTOR)

The user

### PRECONDITIONS

The list of tasks must be loaded correctly

### BASIC FLOW

The use case start when the user selects “Display task with id”

The user inputs an ID and the system returns the task that contains the given ID.

### EXTENSIONS / VARIATIONS

If wrong input is provided the program fails.

### POST CONDITIONS

Task is displayed.

## ID: UC 5

### DESCRIPTION AND GOAL

The use case “createReport”:

The system creates a file of the Gantt diagram with the specific format (txt, md, html) that the user wants.

### ACTORS (ESP. PRIMARY ACTOR)

The user

### PRECONDITIONS

The list of tasks must be loaded correctly

### BASIC FLOW

The use case starts when the user selects a file format for the system to create.

### EXTENSIONS / VARIATIONS

If wrong input is provided the program fails.

### POST CONDITIONS

File with the specific format is created and saved.

## 2 ΣΧΕΔΙΑΣΗ ΕΛΕΓΧΩΝ.

### 2.1 ΕΛΕΓΧΟΣ USE CASES VIA SYSTEM TESTS

#### 2.1.1 USE CASE UC1: LOAD

#### **Test cases**

<i>Description</i>	<i>ON</i>	<i>any context</i>
	<i>RECEIVING</i>	<i>Request to parse a specific tsv file with a valid Gantt diagram</i>
	<i>ENSURE</i>	<i>That the System</i>
	<i>OUTPUTS</i>	<i>The Gantt Diagram</i>
	<i>SUCH THAT</i>	<i>File is loaded</i>

ID	T1_V0_01	HappyDayScenario for MainController.load()
Pre-cond.		No precon
Input		test.txt, a file with tasks, all valid
Output		A list with all the tasks from the file sorted
Post-cond.		Tested if the file displayed is sorted
Methods To test		MainController.load(), TaskFunctions.sort(), TaskFunctions.convertTasks(), parser.fileParser(filename, delimiter)

ID	T1_V0_02	RainyDayScenario for MainController.load()
Pre-cond.		No precon
Input		Input file does not exist
Output		Wrong file input
Post-cond.		Tasks are not loaded
Methods To test		MainController.load(), TaskFunctions.sort(), TaskFunctions.convertTasks(), parser.fileParser(filename, delimiter)

### Involved methods

MainController.load(),

Parser → parser.fileParser(filename, delimiter)

Dom → TaskFunctions.convertTasks(), TaskFunctions.load (), TaskFunctions.sort()

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### 2.1.2 USE CASE UC2: GETTOPLEVELTASK

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### Test cases

<i>Description</i>	<i>ON</i>	<i>Gantt diagram (ArrayList of tasks)</i>
	<i>RECEIVING</i>	<i>Sorted tasks</i>
	<i>ENSURE</i>	<i>That the System</i>
	<i>OUTPUTS</i>	<i>Top Level Task</i>
	<i>SUCH THAT</i>	<i>The user gets the top level tasks</i>

ID	T2_V0_01	HappyDayScenario for MainController.getTopLevelTask()
Pre-cond.		Loaded file is sorted
Input		The list of tasks
Output		Top level tasks
Post-cond.		Tested if the system returns the top level tasks
Methods To test		MainController.getTopLevelTasks(), TaskFunctions.getTopLevelTasks()

ID	T2_V0_02	RainyDayScenario for MainController.getTopLevelTask()
Pre-cond.		No loaded file
Input		input file does not exist
Output		-
Post-cond.		Nothing is displayed
Methods To test		MainController.getTopLevelTasks() TaskFunctions.getTopLevelTasks()

### Involved methods

MainController.getTopLevelTask()

dom → TaskFunctions.getTopLevelTasks()

### 2.1.3 USE CASE UC3: GETTASKBYPREFIX

### Test cases

<i>Description</i>	<i>ON</i>	<i>Gantt diagram (ArrayList of tasks)</i>
	<i>RECEIVING</i>	<i>The list is sorted</i>
	<i>ENSURE</i>	<i>That the System</i>
	<i>OUTPUTS</i>	<i>prefix Tasks</i>
	<i>SUCH THAT</i>	<i>The user gets the tasks with the given prefix</i>

ID	T3_V0_01	HappyDayScenario for MainController.getTaskByPrefix()
Pre-cond.		Loaded file is sorted
Input		The list of tasks
Output		prefix tasks
Post-cond.		Tested if the system returns the prefix tasks
Method To test		MainController.getTaskByPrefix() TaskFunctions.getTaskByPrefix()

ID	T3_V0_02	RainyDayScenario for MainController.getTaskByPrefix()
Pre-cond.		No file loaded
Input		input file does not exist
Output		nothing
Post-cond.		Nothing is displayed
Method To test		MainController.getTaskByPrefix() TaskFunctions.getTaskByPrefix()

### Involved methods

MainController.getTaskByPrefix()

dom → TaskFunctions.getTaskByPrefix()

### 2.1.4 USE CASE UC4: GETTASKBYID

<i>Description</i>	<i>ON</i>	<i>Gantt diagram (ArrayList of tasks)</i>
	<i>RECEIVING</i>	<i>The list is sorted</i>
	<i>ENSURE</i>	<i>That the System</i>
	<i>OUTPUTS</i>	<i>Task with ID</i>
	<i>SUCH THAT</i>	<i>The user gets the task with the given ID</i>

ID	T4_V0_01	HappyDayScenario for MainController.getTaskByID ()
Pre-cond.		Loaded file that is sorted
Input		The list of tasks
Output		Task with specific ID
Post-cond.		Tested if the system returns the task with the given ID
Methods To test		MainController.getTaskByID () TaskFunctions.getTaskByID()

ID	T4_V0_02	RainyDayScenario for MainController.getTaskByID ()
Pre-cond.		No file loaded
Input		Input file does not exist
Output		Return nothing
Post-cond.		-
Methods To test		MainController.getTaskByID () TaskFunctions.getTaskByID()

#### Involved methods

MainController.getTaskByID ()

dom→TaskFunctions.getTaskByID()

### 2.1.5 USE CASE UC5: CREATEREPORT

<i>Description</i>	<i>ON</i>	<i>File.tsv input</i>
	<i>RECEIVING</i>	<i>List of tasks sorted (Gantt diagram)</i>
	<i>ENSURE</i>	<i>That the System</i>
	<i>OUTPUTS</i>	<i>File.type (txt, md, html)</i>
	<i>SUCH THAT</i>	<i>The user gets a file with the Gantt diagram</i>

ID	T5_V0_01	HappyDayScenario for MainController.createReport()
Pre-cond.		Loaded file sorted
Input		File.tsv
Output		Type of file with the Gantt diagram on specific format(txt, md, html).
Post-cond.		Tested if the file is saved correctly
Methods To test		MainController.createReport() CreateReport.textConvert (path,tasks) CreateReport.MdConvert (path,tasks)



		CreateReport.htmlConvert (path,tasks)
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ID	T5_V0_02	RainyDayScenario for MainController.createReport()
Pre-cond.		Loaded file sorted
Input		Wrong file type
Output		No file created
Post-cond.		-
Methods To test		MainController.createReport() CreateReport.textConvert (path,tasks) CreateReport.MdConvert (path,tasks) CreateReport.htmlConvert (path,tasks)

### Involved methods

MainController.createReport(type)

reporter → CreateReport.textConvert (path,tasks)

reporter → CreateReport.MdConvert (path,tasks)

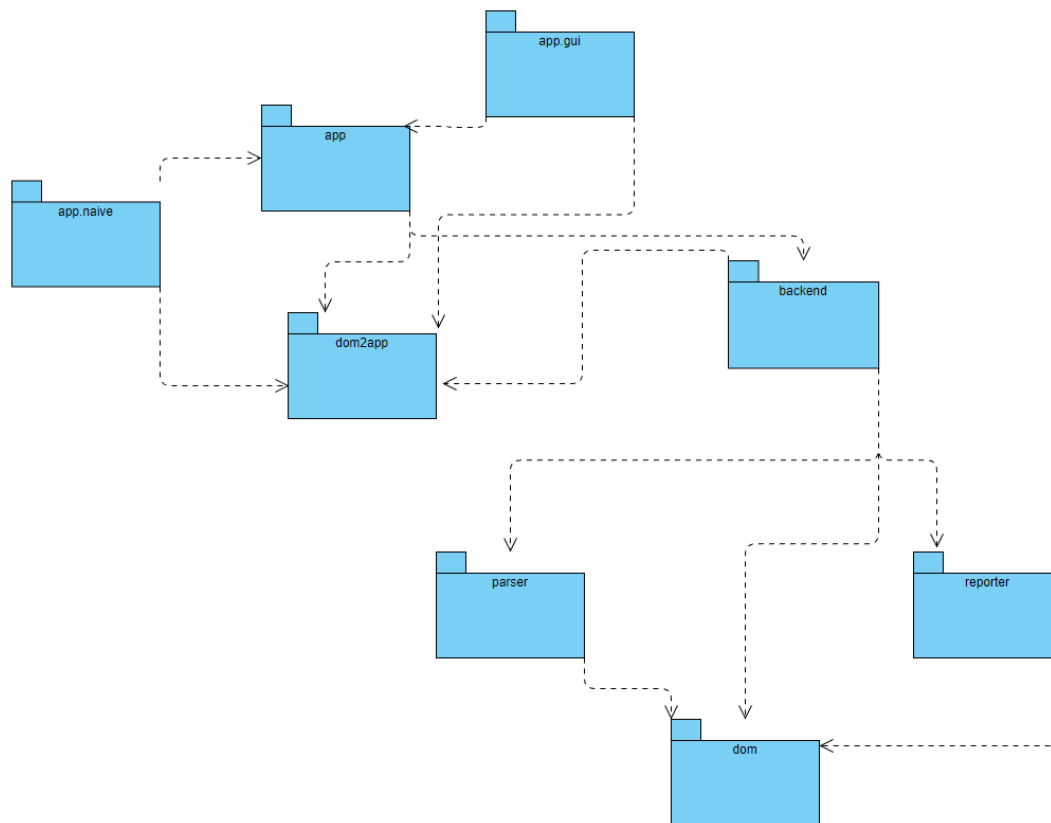
reporter → CreateReport.htmlConvert (path,tasks)

## 2.2 TRACEABILITY MATRIX

UC1	Load				
UC2	getTopLevelTasks				
UC3	getTasksByPrefix				
UC4	getTaskById				
UC5	createReport				
	UC1	UC2	UC3	UC4	UC5
T1_V0_01	X				
T1_V0_02	X				
T2_V0_01		X			
T2_V0_02		X			
T3_V0_01			X		
T3_V0_02			X		
T4_V0_01				X	
T4_V0_02				X	
T5_V0_01					X
T5_V0_02					X

## 3 ΣΧΕΔΙΑΣΗ ΛΟΓΙΣΜΙΚΟΥ

### 3.1 ΔΙΑΓΡΑΜΜΑΤΑ ΠΑΚΕΤΩΝ / ΥΠΟΣΥΣΤΗΜΑΤΩΝ



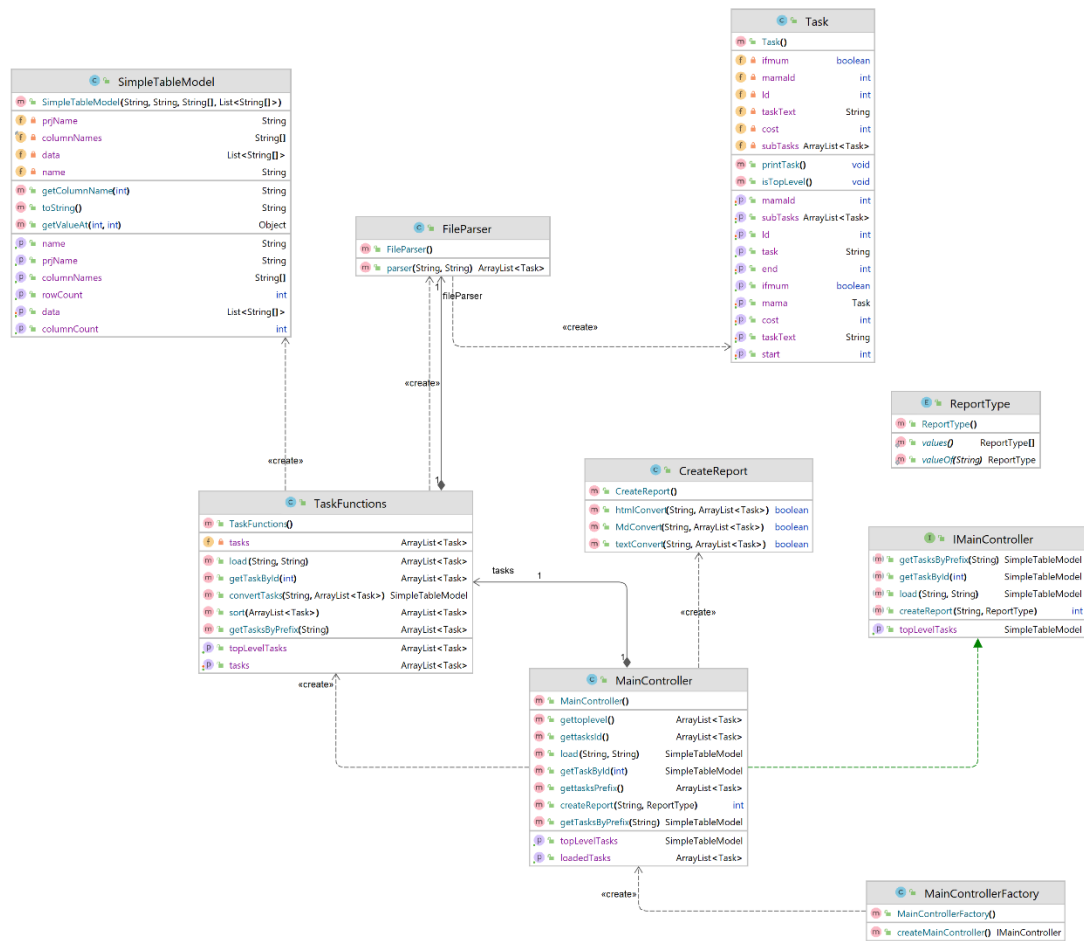
Ακολουθεί μια συνοπτική περιγραφή των πακέτων του backend:

#### ΠΑΚΕΤΑ ΤΟΥ BACKEND

dom	Includes the class Task (domain) that has all the information of a task and the class TaskFunctions (business logic) with all the functions and requirements to extract specific tasks from the arraylist of tasks.
parser	Includes the class FileParser (domain) that converts the input file into an arraylist of tasks with all their specific informations.
reporter	Includes the class CreateReport(business logic) that creates a file on the supported formats(txt, md, html).

### 3.2 ΔΙΑΓΡΑΜΜΑΤΑ ΚΛΑΣΕΩΝ

**package** backend



UML



### 3.3 ΑΝΑΛΥΣΗ ΚΛΑΣΕΩΝ ΚΑΙ ΣΥΝΕΠΕΙΑ ΠΡΟΣ ΤΙΣ ΑΠΑΙΤΗΣΕΙΣ

#### 3.3.1 DOMAIN CLASSES

Package backend

Task, FileParser

#### 3.3.2 BUSINESS LOGIC CLASSES

Package backend

TaskFunctions, CreateReport, MainController, IMainController, MainControllerFactory, ReportType

#### 3.3.3 BOUNDARY CLASSES

Package dom2app

SimpleTableModel

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### 3.3.4 ΑΠΕΙΚΟΝΙΣΗ ΑΠΑΙΤΗΣΕΩΝ ΣΕ ΜΕΘΟΔΟΥΣ

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#### ΑΠΕΙΚΟΝΙΣΗ USE CASES ΣΕ ΜΕΘΟΔΟΥΣ

UC	backend methods
load	MainController.load()->TaskFunctions.load() ->fileParser.parser()->TaskFunctions.convertTasks()
getTopLevelTasks	MainController.getTopLevelTasks() ->TaskFunctions.getTopLevelTasks()
getTasksByPrefix	MainController.getTasksByPrefix() ->TaskFunctions.getTasksByPrefix()
getTaskById	MainController.getTaskById() ->TaskFunctions.getTaskById
createReport	MainController.createReport() ->CreateReport.”type”Convert()

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## 4 ΛΟΙΠΑ ΣΧΟΛΙΑ

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### 4.1 ΣΗΜΕΙΑ ΚΙΝΔΥΝΟΥ

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Wrong file input. Το πρόγραμμα δεν τρέχει.