



Faculty of Technology

Analysis document

**1DV508 – Project Course in Computer Science
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1. Introduction

The product is a timeline management application designed to help the user manage and keep track of their schedule in an easy way.

The aim of the document is to present and explain the system requirements of the timeline management application and to be used as a guide when developing the application.

2. Product description

The timeline management application is meant to be used for personal purposes. The user can create and manage multiple timelines, in which they can add as many events as they require. All information will be stored in a SQL database, that will load the information upon the startup of the application.

The application starts with an empty view of the current week. The user can start creating timelines from the menu located on the left side. After at least one timeline has been created, the user can use the same left side menu to create events for that timeline. Events that have a duration will be shown as horizontal bars, whereas non-duration (one day) events will be displayed as diamond shapes on the timeline. Moreover, the user is required to provide a title that will be always shown in the timeline as well as a start and end date for each timeline and event. The user can also add a description for the event. All of which can be edited at any time.

Each timeline will have a different color and each task will have a different variation of the timeline color. Each restart of the application will display the timelines and their tasks in new different colors.

The product's design provides the user with accessibility and flexibility, making it easy to create and change events by right clicking on them, easy to get an overview of the timeline just by scrolling vertically or to just delete an entire timeline at once.

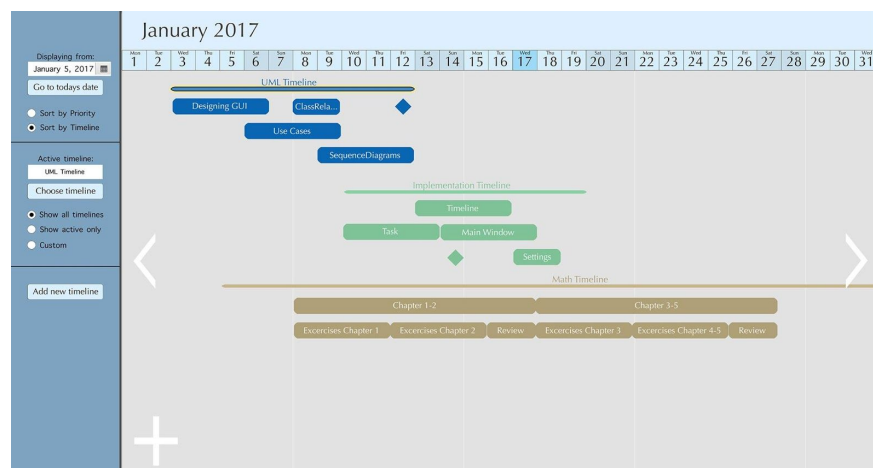


Fig 1. Original Graphical User Interface for the timeline management application

3. System requirements

The system requirements are divided into: general, create mode, display, and extra requirements. The extra requirements are not mandatory are only to be implemented if time permits.

3.1. General requirements

Unique ID	Requirements
1.1	The user shall be able to save and load timelines.
1.2	The data shall be stored in a text file (replaced by extra requirement 4.2).

3.2. Create mode requirements

Unique ID	Requirements
2.1	The user shall be able to add multiple (more than one) timelines with a separate start- and end time.
2.2	When adding a timeline the user shall specify a title and start-and-end time.
2.3	The user shall be able to add a description to the timeline.
2.4	The user shall be able to add any number of events to a timeline.
2.5	When adding an event the user shall specify a title and start- and end time.
2.8	The user shall be able to add a description text to the event.
2.9	The user shall be able to delete a complete timeline or an event on a timeline.
2.10	The user shall be able to modify the title, descriptive text or time(s) for a timeline/ an event.

3.3. Display mode requirements

Unique ID	Requirements
3.1	In display mode, all timelines and all events on each timeline shall be shown.
3.2	Events shall be placed at the correct time in the timeline.
3.3	The title shall be shown for all events.
3.4	For events with duration, the time span shall be shown with a bar.
3.5	For non-duration events (one-day events), the time span shall be shown in a diamond shape.
3.5	The user shall be able to hover the mouse over an event or timeline to open a popup window showing title, descriptive text and time(s) for the event.
3.6	The user shall be able to scroll vertically if all timelines cannot fit in the display window.
3.7	The user shall be able to click on the left/right arrows in order to change between months.

3.4. Extra requirements

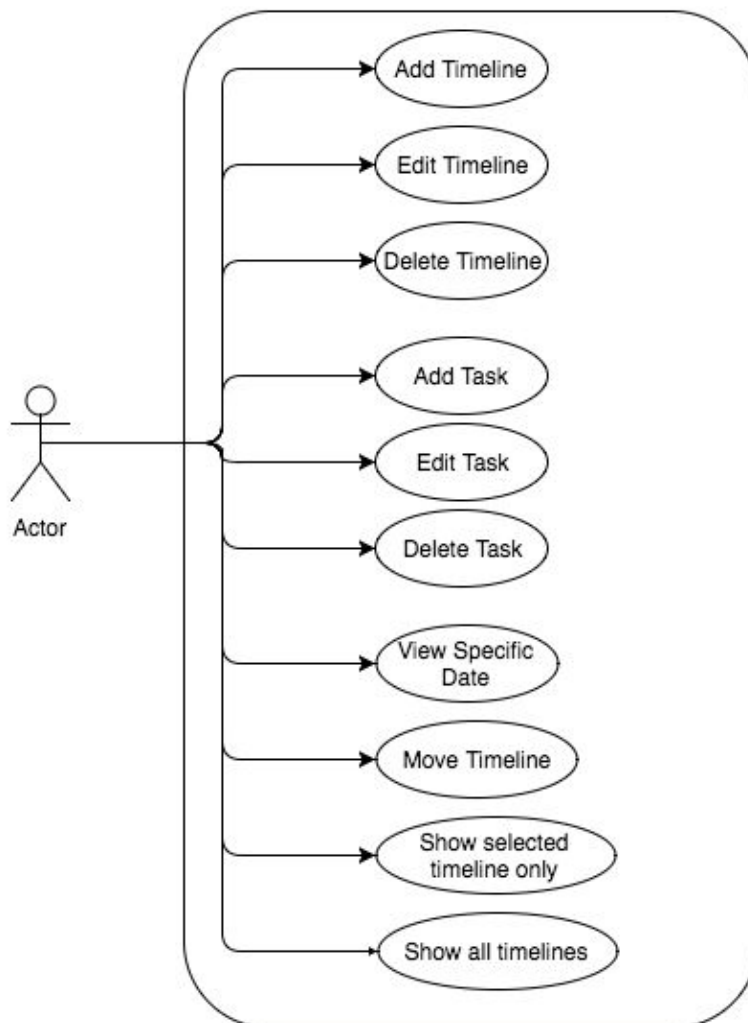
Unique ID	Requirements
4.1	It should be possible to change times by dragging the edges.
4.2	The data should be stored in a SQL database (implemented).
4.3	When starting the application it should be possible to choose the user.
4.4	The user should be able to choose different zoom levels (month, week, day).
4.5	If the user chooses a password for their account, the password should be encrypted with a substitution-transposition method.
4.6	The user should be able to change the colors of the tasks.

4.7	There should be a help button (implemented).
4.8	The user should be able to hide non-active timelines and events
4.9	The user should be able to select only a timeline to be displayed at a time (implemented).
4.10	The user should be able to move an entire timeline and its events (implemented).
4.11	When creating an event the user should only be able to choose start and end dates which are in the duration of the timeline (implemented).
4.12	Each timeline should have a different color from each other (implemented).
4.13	Each task should have a variation color of the timeline it belongs to (implemented).
4.14	The colors of the timelines and their tasks should change upon restart of the application (implemented).

4. Use cases

There are ten use cases: add/edit/delete/move timeline, add/edit/delete task, view a specific date, show selected timeline and show all timelines.

Group 2: Timeline manager Use Case Diagram



4.1. Add timeline case

Title	Adding a new timeline
Brief description	This use case describes how the user can add a new timeline to the system.
Actors	User
Preconditions	None
Primary path	<ol style="list-style-type: none">1. The user presses the "Add Timeline" button.2. A new window pops up for adding a new Timeline.3. The user edits the fields, title, description, start time, end time.4. The user presses save.5. The new timeline will be added and displayed as Visible Timelines.6. The active timeline will be changed to the newly created timeline.
Alternate path	None
Exception path	<p>Incorrect information that is entered in the edit event pop-up window, such as too long title/description or faulty start/end time.</p> <p>The incorrect field will display a red border. An error message will also be displayed when hovering over the incorrect field.</p>
Post-conditions	A new timeline will be added in the system.

4.2. Edit timeline case

Title	Edit Timeline
Brief description	This use case describes how a user changes an existing timeline.
Actors	User
Preconditions	A timeline has been created.

Primary path	<ol style="list-style-type: none"> 1. The user right clicks on the selected timeline. 2. The user selects "Edit Timeline" from the context menu. 3. A new window pops up with editable fields of pre-filled information about the timeline. 4. User edits the information and presses save button. 5. The timeline details have been changed and the edited timeline is visible in the main window.
Alternate path	None.
Exception path	<p>Incorrect information that is entered in the edit event pop-up window, such as too long title/description or faulty start/end time.</p> <p>The incorrect field will display a red border. An error message will also be displayed when hovering over the incorrect field.</p>
Post-conditions	The edited timeline is saved in the system and will be visible in the main window.

4.3. Delete timeline case

Title	Delete Timeline
Brief description	This use case describes how a user deletes a timeline.
Actors	User
Preconditions	A timeline has been created.
Primary path	<ol style="list-style-type: none"> 1. The user right clicks the selected timeline. 2. The user selects "Delete Timeline" from the context menu. 3. The timeline and all tasks belonging to the timeline is removed from the system and is no longer visible in the main window.
Alternate path	None

Exception path	None
Post-conditions	The deleted timeline is removed from the system and is no longer visible in the main window.

4.4. Add task case

Title	Add task
Brief description	This use case describes how the user can add a new task to a timeline.
Actors	User
Preconditions	A timeline is created.
Primary path	<ol style="list-style-type: none"> 1. The user presses the "Add Task" button. 2. A new window pops up where the user can add details to the Task. 3. The user adds title, description, start date, and end date. 4. When the user presses the save button. 5. The information from step 3 is added to a new task in the active timeline. 6. The view is refreshed with the new task included if dates are in the visible region.
Alternate path	<ol style="list-style-type: none"> 1. The user presses the "+" in the left bottom corner of the main view 2. A new window pops up where the user can edit details of the Task. 3. The user adds title, description, start date, and end date. 4. When the user presses the save button. 5. The information from step 3 is added to a new task in the active timeline.

	6. The view is refreshed with the new task included if dates are in the visible region.
Exception path	Incorrect information that is entered in the edit event pop-up window, such as too long title/description or faulty start/end time. The incorrect field will display a red border. An error message will also be displayed when hovering over the incorrect field.
Post-conditions	The new task is added to the system and is shown in the timeline.

4.5. Edit task case

Title	Edit task
Brief Description	This use case describes the steps taken to edit a task on the timeline.
Actors	User
Preconditions	A timeline has been created and is active. A task has been created and saved.
Primary path	<ol style="list-style-type: none"> 1. The user right clicks the task in the timeline. 2. The user selects "Edit Task" from the context menu. 3. A new window pops up with information already saved such as a title, description, start and end time. 4. The user edits the information and presses "Save". 5. The event is edited and displayed on the timeline.
Alternate Path	None
Exception Path	Incorrect information that is entered in the edit event pop-up window, such as too long title/description or faulty start/end time. The incorrect field will display a red border. An error message will also be displayed when hovering over the incorrect field.
Post Conditions	The event is edited and can be seen on the timeline.

4.6. Delete task case

Title	Delete Task
Brief Description	This use case describes the steps taken to edit a task in the timeline.
Actors	User
Preconditions	A timeline has been created and is active. A task has been created and saved.
Primary path	<ol style="list-style-type: none">1. The user right clicks the task in the timeline.2. The user selects "Delete Task" from the context menu.3. The event is deleted.
Alternate Path	None
Exception Path	None
Post Conditions	The event is deleted and disappears from the timeline.

4.7. View a specific date case

Title	View a specific date
Brief description	This use case describes how to display a specific date on the timeline viewer.
Actors	User
Preconditions	None
Primary path	<ol style="list-style-type: none">1. The user presses the calendar button under "Today".2. A new window with dates pops up.3. The user selects a date and clicks "Ok".4. The timeline viewer is now displaying the selected date.
Alternate path	The user can use the left and right buttons to find the date.

Exception path	None.
Post-conditions	Timeline viewer is displaying the selected date.

4.8. Move timeline case

Title	Move timeline
Brief Description	The user wants to move a timeline, along with all its events at the same time.
Actors	User
Preconditions	At least one timeline should have been created for this to have any effect on the system.
Primary path	<ol style="list-style-type: none"> 1. The user right clicks on the timeline. 2. The user selects "Move timeline with tasks" from the context menu. 3. A new window pops-up with pre-filled information about the timeline. 4. The user selects new start and end dates and clicks "Ok". 5. The timeline is now moved.
Alternate Path	None.
Exception Path	<p>Incorrect information that is entered about the duration of the timeline.</p> <p>An alert will pop up warning the user about the incompatibility of the timeline's new duration and its tasks.</p>
Post-Conditions	The timeline viewer is displaying the timeline in its new position.

4.9. Show selected timeline only case

Title	Show selected timeline only
Brief Description	The user wants to display only a certain timeline.
Actors	User

Preconditions	<ol style="list-style-type: none"> 1. At least two timelines should have been created for this to have any effect on the system. 2. The timeline view should be set to view all timelines mode.
Primary path	<ol style="list-style-type: none"> 1. The user selects a timeline. 2. The user chooses "Selected Timeline" radio button in the View settings pane. 3. Only the selected timeline will be shown.
Alternate Path	None.
Exception Path	None
Post Conditions	The timeline(s) that is(are) not selected will not be visible in the main window.

4.10. Show all timelines case

Title	Show all timelines
Brief Description	The user wants all timelines to be shown.
Actors	User
Preconditions	<ol style="list-style-type: none"> 1. At least two timelines should have been created for this to have any effect on the system. 2. The timeline view should be set to view selected timeline mode.
Primary path	<ol style="list-style-type: none"> 1. The user chooses "All Timelines" radio button in the View settings pane. 2. All the timelines will be shown.
Alternate Path	None.
Exception Path	None