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## Text2SpeechEditor

### Sprint No 2-Complete Report

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## VERSIONS HISTORY

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Date	Version	Description	Author
16/05/2020	2.0	Complete implementation of all User-Stories, tested and working.	Eleni Mouzaki Panagiotis Papaioannou Paraschos Ferrou-Graven

## 1 Introduction

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This document provides information concerning the 2<sup>nd</sup> sprint of the project.

### 1.1 Purpose

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This program was created for educational purposes under the study of Software Engineering at the Dept. of Computer Science & Engineering at University of Ioannina, taught by Apostolos Zarras during the spring semester of 2020.

### 1.2 Document Structure

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The rest of this document is structured as follows. Section 2 describes out Scrum team and specifies this Sprint's backlog. Section 3 specifies the main design concepts for this release of the project.

## 2 Sprint Backlog

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**All user stories have been realized for this Sprint [US1-US13].**

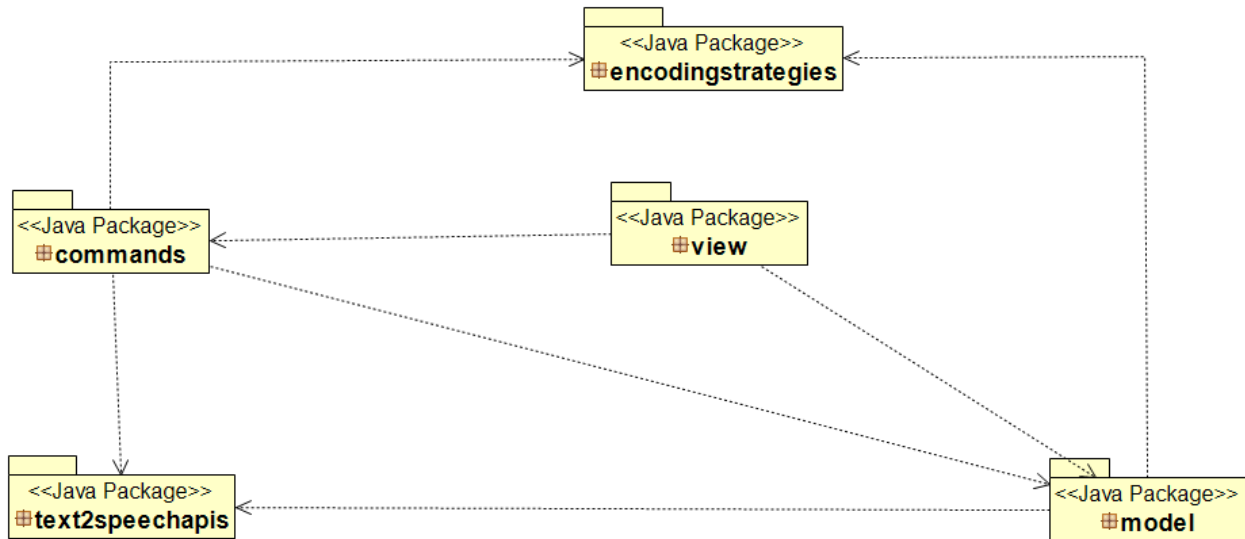
## 3 Design

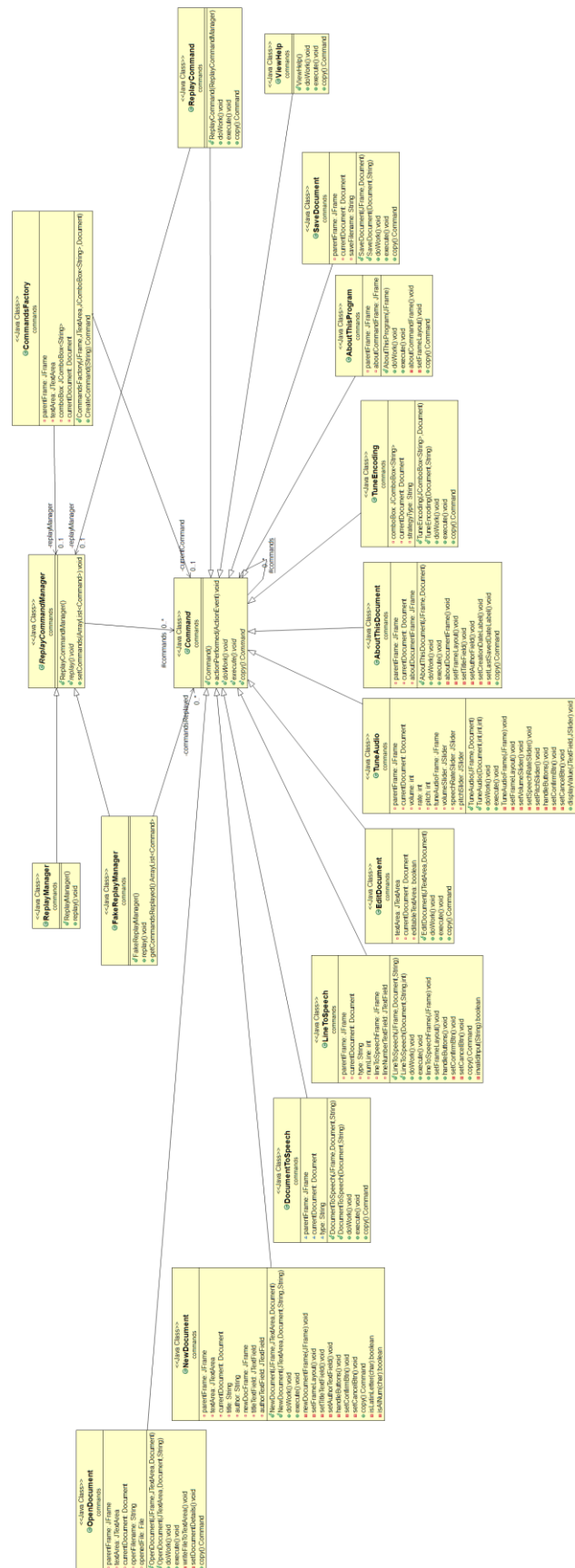
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### 3.1 Architecture

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**UML package diagram** of the complete project.





Class Name: Command	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Abstraction and extensibility</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ CommandsFactory</li> <li>▪ ReplayCommandManager</li> </ul>

Class Name: CommandsFactory	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Creation of Commands</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ Command</li> <li>▪ ReplayCommandManager</li> </ul>

Class Name: NewDocument	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Creation of a new empty document</li> <li>▪ Sets user-given title and author</li> <li>▪ Sets creation date</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ Command</li> <li>▪ Document</li> </ul>

Class Name: OpenDocument	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Opens the contents of an existing file from disk, file path determined by the user</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ Command</li> <li>▪ Document</li> </ul>

Class Name: SaveDocument	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Saves the contents of the current document to disk, file path determined by the user</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ Command</li> <li>▪ Document</li> </ul>

Class Name: EditDocument	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>Edits and updates the contents of the current document</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>Command</li> <li>Document</li> </ul>

Class Name: DocumentToSpeech	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>Transforms the contents of the current document to speech depending on the user's selection of speech (normal, reverse, encoded)</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>Command</li> <li>Document</li> </ul>

Class Name: LineToSpeech	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>Transforms the contents of a specific line of the current document to speech depending on the user's selection of speech (normal, reverse, encoded)</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>Command</li> <li>Document</li> </ul>

Class Name: TuneAudio	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>Sets user specified audio parameters (volume, speech rate, pitch)</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>Command</li> <li>Document</li> </ul>

Class Name: TuneEncoding	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>Sets user specified document encoding for TextToSpeech</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>Command</li> <li>Document</li> </ul>

Class Name: ReplayCommand	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Sets all previously executed commands to the ReplayCommandManager's list</li> <li>▪ Replays all previously executed commands</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ Command</li> <li>▪ ReplayCommandManager</li> </ul>

Class Name: ReplayCommandManager	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Generic</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ CommandsFactory</li> <li>▪ ReplayManager</li> <li>▪ FakeReplayCommand</li> </ul>

Class Name: ReplayManager	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Executes the commands inside the ReplayCommandManager's list</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ ReplayCommandManager</li> </ul>

Class Name: FakeReplayCommand	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Useful for testing</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ ReplayCommandManager</li> </ul>

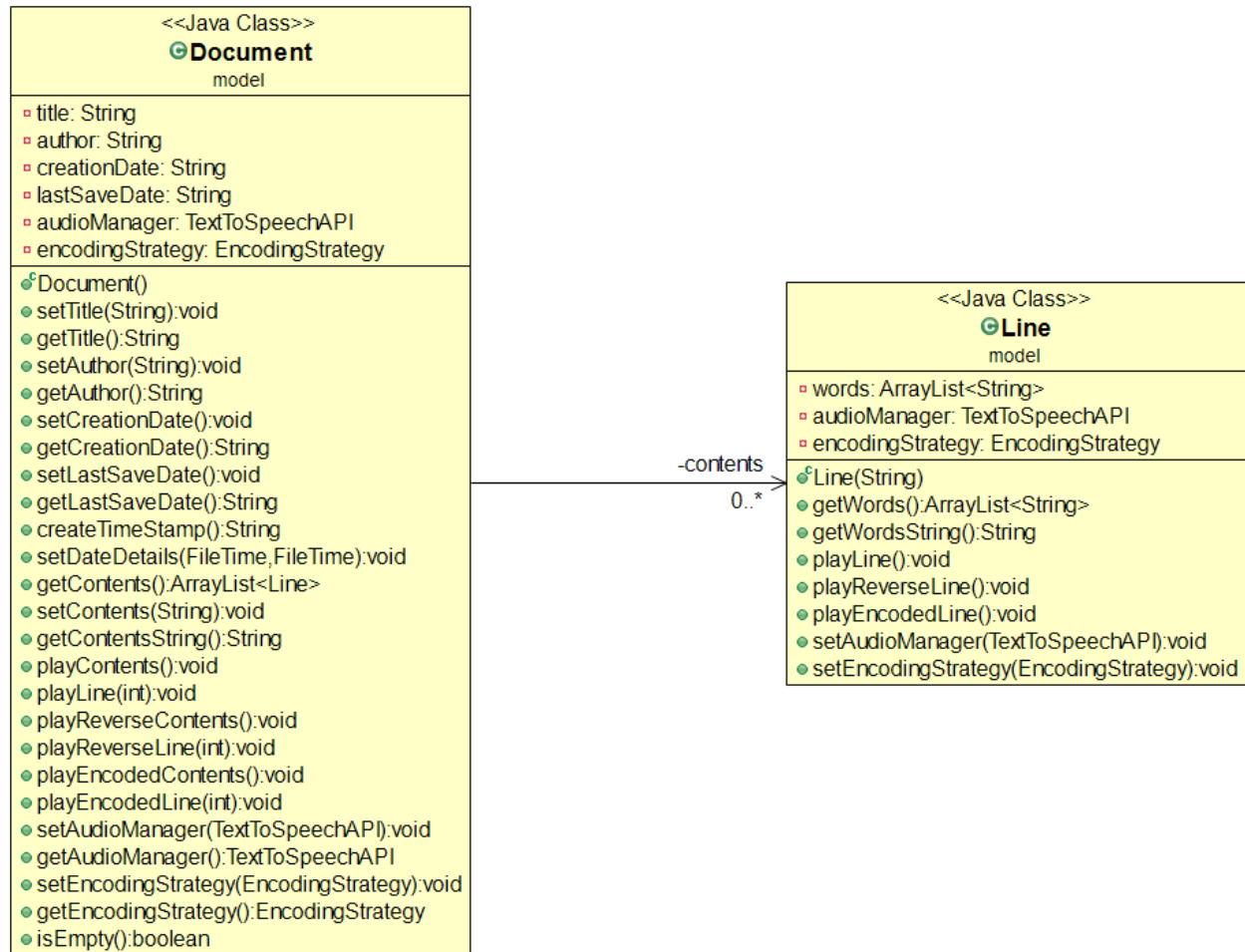
Class Name: AboutThisDocument	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Displays useful info for the current document</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ Command</li> <li>▪ Document</li> </ul>

Class Name: AboutThisProgram	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Displays info about the program and its creators</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ Command</li> </ul>



<b>Class Name: ViewHelp</b>	
<b>Responsibilities:</b>	<b>Collaborations:</b>
<ul style="list-style-type: none"> <li>▪ Opens the pdf with the user guide</li> </ul>	<ul style="list-style-type: none"> <li>▪ Command</li> </ul>

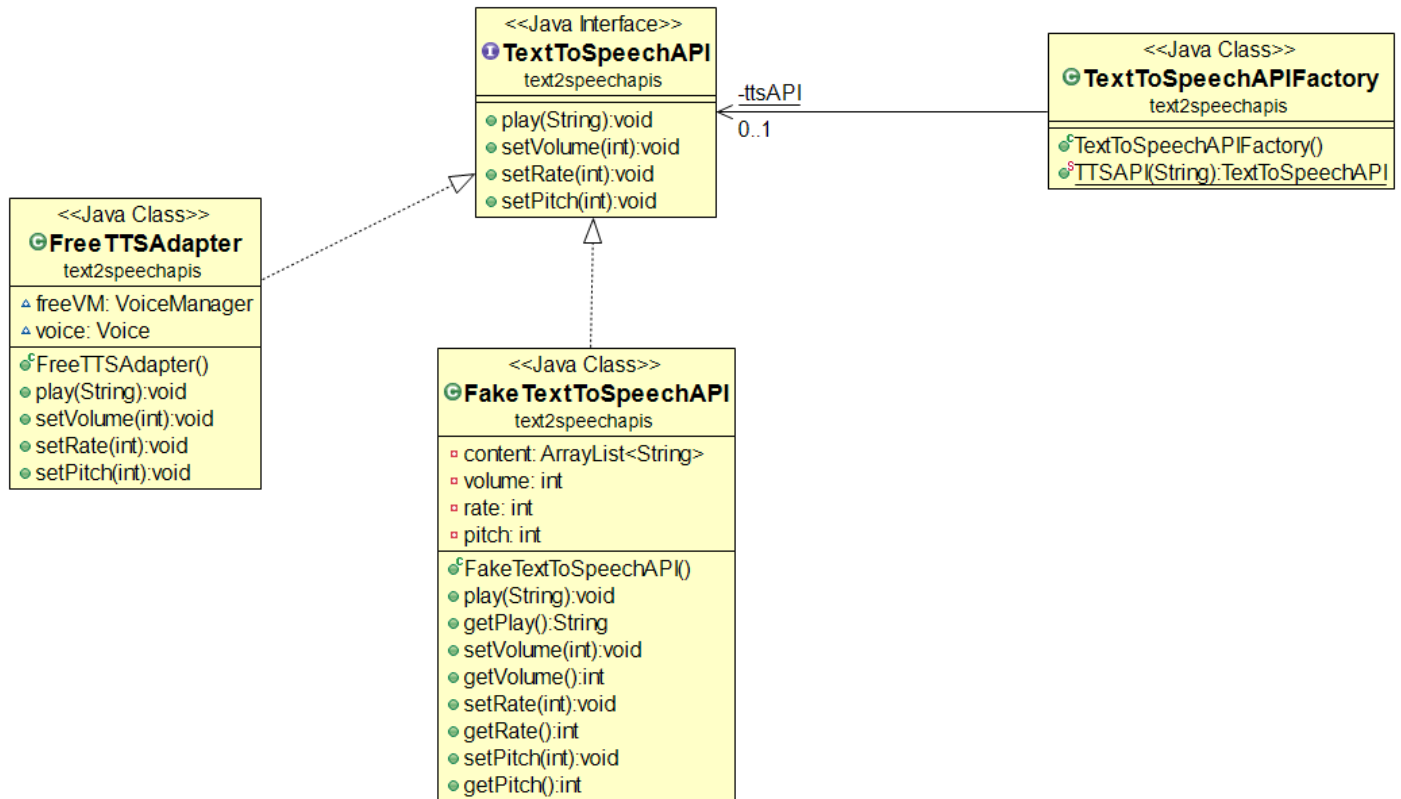
- Package: model



Class Name: Document	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Stores basic properties such as title, author, current date etc.</li> <li>▪ Manages and turns its contents to speech</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ Line</li> <li>▪ TextToSpeechAPI</li> <li>▪ EncodingStrategy</li> </ul>

Class Name: Line	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Stores the contents of a document line</li> <li>▪ Forms a sentence and turns it to speech</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ TextToSpeechAPI</li> <li>▪ EncodingStrategy</li> </ul>

- Package: text2speechapis



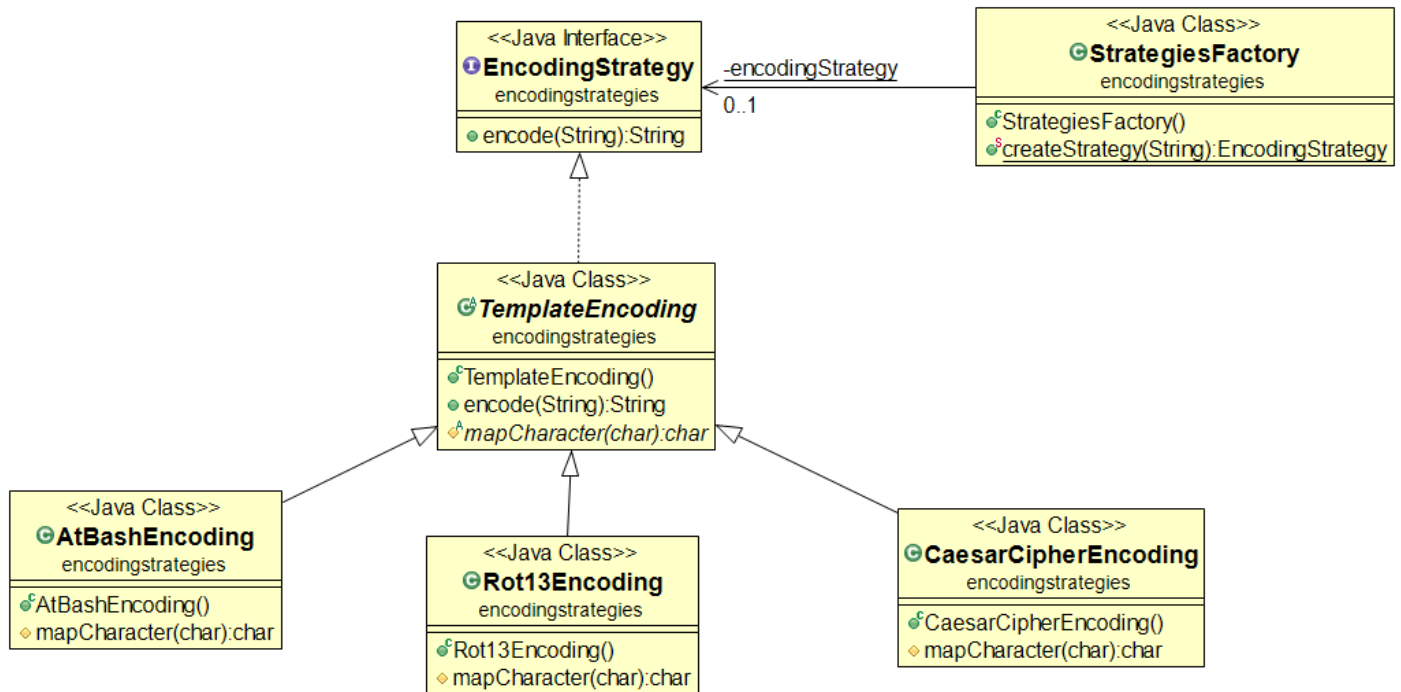
Class Name: TextToSpeechAPI	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Generic interface</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ TextToSpeechAPIFactory</li> <li>▪ CommandsFactory</li> <li>▪ Document</li> <li>▪ Line</li> </ul>

Class Name: TextToSpeechAPIFactory	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Creation of TextToSpeechAPI subclasses</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ FreeTTSAdapter</li> <li>▪ FakeTextToSpeechAPI</li> </ul>

Class Name: FreeTTSAdapter	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Initialize the voice</li> <li>▪ Plays given content</li> <li>▪ Set voice's values such as volume, speech rate and pitch</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ TextToSpeechAPI</li> </ul>

Class Name: FakeTextToSpeechAPI	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Useful for testing</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ TextToSpeechAPI</li> </ul>

- Package: encodingstrategies



<b>Class Name: EncodingStrategy</b>	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Generic interface</li> <li>▪ Implementation of Strategy Pattern</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ StrategiesFactory</li> </ul>

<b>Class Name: TemplateEncoding</b>	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Implementation of Template Method pattern</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ EncodingStrategy</li> </ul>

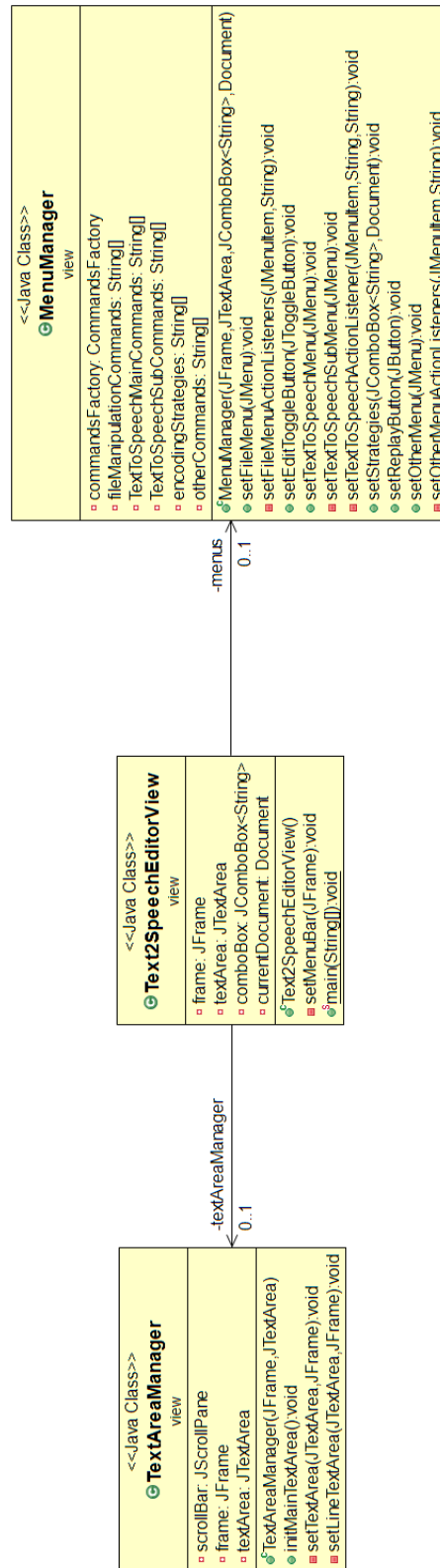
<b>Class Name: StrategiesFactory</b>	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Creation of encoding strategies</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ EncodingStrategy</li> </ul>

<b>Class Name: AtBashEncoding</b>	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Encodes given char to AtBash</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ TemplateEncoding</li> </ul>

<b>Class Name: Rot13Encoding</b>	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Encodes given char to Rot13</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ TemplateEncoding</li> </ul>

<b>Class Name: CaesarCipherEncoding</b>	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Encodes given char to Caesar Cipher</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ TemplateEncoding</li> </ul>

- Package: view





Class Name: MenuManager	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Populates the main menu with commands</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ CommandsFactory</li> </ul>

Class Name: TextAreaManager	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Creates the main text area</li> <li>▪ Creates a sub text area to display and update the number of lines</li> </ul>	<b>Collaborations:</b>

Class Name: Text2SpeechEditorView	
<b>Responsibilities:</b> <ul style="list-style-type: none"> <li>▪ Creates the main window frame</li> <li>▪ Executes the program</li> </ul>	<b>Collaborations:</b> <ul style="list-style-type: none"> <li>▪ MenuManager</li> <li>▪ TextAreaManager</li> </ul>

## 4 Tests

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User Story X Test Class	US1	US2	US3	US4	US5	US6	US7	US8	US9	US10	US11	US12	US13
NewDocumentTest	X												
EditDocumentTest		X											
SaveDocumentTest			X										
OpenDocumentTest				X									
DocumentToSpeechTest					X		X		X				
LineToSpeechTest						X		X		X			
TuneAudioTest											X		
TuneEncodingTest												X	
ReplayTest													X

This matrix displays which user stories are tested by each test.

All the tests are parametrized test with 10 different cases.

NewDocumentTest: creates a NewDocument command and executes it, then checks if the correct title, author have been set.

EditDocumentTest: sets contents to the text area, creates an EditDocument command and executes it and then compares the contents of the text area against the contents of the document.

SaveDocumentTest: sets contents to a document, creates a SaveDocument command and executes it after that reads the file that has been saved and then compares the contents of the document against the contents of the new file.

OpenDocumentTest: reads the contents of an existing document, creates an OpenDocumentTest command for this document, executes it and then compares the contents of that document against the ones opened from the command.

DocumentToSpeechTest: sets contents to document, creates a FakeAudioManager and a DocumentToSpeech command of each type (normal, reverse, encoded), executes it and then compares the document contents against the contents that are to be played by the FakeAudioManager.

LineToSpeechTest: sets contents to document, creates a FakeAudioManager and a LineToSpeech command of each type (normal, reverse, encoded), for a certain line, executes it and then compares the document line against the line that is to be played by the FakeAudioManager.

TuneAudioTest: creates a FakeAudioManager and a TuneAudio command, sets certain values to volume, pitch and rate, executes the TuneAudio command and then compares the values that have been set against the ones set in the FakeAudioManager.

TuneEncodingTest: creates a TuneEncoding command, executes it and then checks whether the type of the strategy object that is referenced by the current document object has been changed.

ReplayTest: creates a list of commands to be replayed, a FakeReplayManager object and a Replay command, executes the Replay command and then compares the list of the replayed commands from the FakeReplayManager against the ones from the Replay command.

A Test Suite was used to run all the tests at once.