# User Requirements Document

Group 1

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Abstract
This is the User Requirements Document for the Software Engineering Project. This document is based on the ESA standard for software development and the work of many previous SEP groups.

# Contents

# **Document Status Sheet**

### 10 Document status overview

#### General

Document title: User Requirements Document

Identification: Choose some id, e.g.: SQAP0.0.pdf

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### Document history

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### General

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### Changes

Page	Paragraph	Reason to change
pageref	ref	reason

## Introduction

### 1.1 Purpose

This document describes the procedures and control methods to obtain the desired quality level of the end products and the process by which these end products are created. This document serves as a guide for the managers and developers of the Project Name project. All team members must read this document and apply the procedures stated in it. The document applies to all phases of software development as defined in the Project Management Plan [?]. Detailed information about the software quality assurance activities for these phases will be added in appendices during the project.

### <sub>0</sub> 1.2 Scope

A list of software products to be developed and their intended use.

### 1.3 List of definitions

6	2IP35	The Software Engineering Course
	AD	Architectural Design
	ADD	Architectural Design Document
	AT	Acceptance Test
	ATP	Acceptance Test Plan
(	Client	The client
(	CM	Configuration Manager
]	OD	Detailed Design
I	ODD	Detailed Design Document
]	ESA	European Space Agency
7	$\Gamma \mathrm{U/e}$	Eindhoven University of Technology
	ЭM	Operations and Maintenance Plan
1	PM	Project Manager
(	QМ	Quality Manager
5	SCMP	Software Configuration Management Plan
Ç	SEP	Software Engineering Project
5	$\operatorname{SL}$	Software Librarian
5	SPMP	Software Project Management Plan
Ç	SQAP	Software Quality Assurance Plan
Ç	$\operatorname{SR}$	Software Requirements
Ç	SRD	Software Requirements Document
Ç	STD	Software Transfer Document
Ç	SUM	Software User Manual
Ç	SVVP	Software Verification and Validation Plan
Ç	SVVR	Software Verification and Validation Report
7	$\Gamma R$	Transfer phase
Į	JR	User Requirements
Į	JRD	User Requirements Document
7	VPM	Vice Project Manager

### 1.4 List of references

TODO: only all applicable documents!

### 1.5 Overview

Short description of the rest of the SRD and how it is organized.

# 40 General description

#### 2.1 Relation to current projects

The context of this project in relation to other current projects.

### 2.2 Relation to predecessor and successor projects

The context of this project in relation to past and future projects.

### <sup>45</sup> 2.3 Function and purpose

A general overview of the function and purpose of the product.

#### 2.4 Environment

Hardware and operating system of target system and development system. Who will use the system (user roles in URD).

#### 2.5 Relation to other systems

Is the project an independent system, part of a larger system, replacing another system? The essential characteristics of these other systems.

#### 2.6 General constraints

Reasons why constraints exist: background information and justification (analogues to URD).

### 5 2.7 Model description

A description of the logical model.

# Specific requirements

### 3.1 Functional requirements

60 A list of all functional requirements (what should the system do).

01	could have
Users can set a geometry for the canvas	
02	must have
Users can define a initial concentration distribution with black and white	
03	could have
Users can choose which two colors are used for the initial concentration distribution	
04	should have?
Users can define a initial concentration distribution with more than two different	
05	must have
Users can define a mixing protocol for a rectangular geometry as a sequence of	novements of
the upper and lower walls	111
06	could have
Users can define a mixing protocol for a non-rectangular geometry as a sequence	of movements
that are applicable to the geometry	
07	must have
Users can define a step to indicate the timeperiod that each movement from	n the mixing
protocol is applied	
08	could have
Users can define a different step for each separate movement in the mixing pro-	cocol
09	must have
Users can view an image of the endresult of applying the mixing protocol of	on the initial
concentration distribution	
10	should have
Users can save the image from 06 locally to their device, without losing trans	sparency (i.e.
PNG or GIF format)	<i>J</i> (
11	should have
Users can remove previously stored images from their device	
12	should have
Users can view an animation of applying the mixing protocol on the initial	
distribution	
13	should have
Users can save the animation from 09 locally to their device, without losing tran	
APNG or AGIF format	sparency (i.e.
14	should have
Users can remove previously stored animations from their device	should have
	-11-1-1
15	should have
Users can view the mixing performance of the mixing protocol in a graph	1 111
	should have
Users can save the performance results locally on their device	1 111
17	should have
Users can retrieve the performance results that are stored locally on their device	
18	should have
Users can retrieve performance results from multiple mixing protocols simultate	neously, after
which they are depicted in one graph	
19	should have
Users can remove performance results that are stored on their device	

### 3.2 Non-functional requirements

A list of all non-functional requirements (performance, interface, operational, resource, verification/testing, portability, maintainability, reliability, security, safety, documentation, other, ...), linked to functional requirements. Each category of non-functional requirements has its own subsection.

01	must have
The interface contains a canvas which represents the mixing area	
02	should have
The user can define the initial concentration distribution by painting on the	canvas with
his/her finger	
03	must have
The interface contains an easy to use input element to define the sequence of i	movements of
the mixing protocol (i.e. a button or by swiping over the screen)	
04	must have
The interface contains a numberfield to set the step parameter of the mixing pr	rotocol
05	must have
Waiting time between submitting input and receiving output should not be	more than 5
seconds	
06	should have
Waiting time between submitting input and receiving output should not be	more than 3
seconds	
01	could have
Waiting time between submitting input and receiving output should not be	more than 1
seconds	

# Requirements traceability matrix

A table showing how each user requirement of the URD is linked to software requirements in the SRD.