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<Summative BoxHead – Bill Sun & Umair Malik>  
Software Architecture Document (SAD)

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# Documentation Roadmap

Sub-sections of Section 1 include the following.

* Section 1.1 (“Document Management and Configuration Control Information”) explains revision history. This tells you if you’re looking at the correct version of the SAD.
* Section 1.2 (“Purpose and Scope of the SAD”) explains the purpose and scope of the SAD, and indicates what information is and is not included. This tells you if the information you’re seeking is likely to be in this document.
* Section 1.3 (“How the SAD Is Organized”) explains the information that is found in each section of the SAD. This tells you what section(s) in this SAD are most likely to contain the information you seek.
* Section 1.4 (“Stakeholder Representation”) explains the stakeholders for which the SAD has been particularly aimed. This tells you how you might use the SAD to do your job.
* Section 1.5 (“Viewpoint Definitions”) explains the *viewpoints* (as defined by IEEE Standard 1471-2000) used in this SAD. For each viewpoint defined in Section 1.5, there is a corresponding view defined in Section 3 (“Views”). This tells you how the architectural information has been partitioned, and what views are most likely to contain the information you seek.
* Section 1.6 (“How a View is Documented”) explains the standard organization used to document architectural views in this SAD. This tells you what section within a view you should read in order to find the information you seek.

## Document Management and Configuration Control Information

* Revision Number: This SAD (Software Architecture Document) for PyGame has been revised 2 times and the 2.1 edition of SAD is the latest and correct version of the SAD.
* Revision Release Date: 7th May, 2015
* Purpose of Revision: To fix minor errors and make the SAD more reliable and easy to read for the reader.
* Scope of Revision: This document is up to date and has been updated to meet the requirements of a professionally designed SAD.

## Purpose and Scope of the SAD

This SAD specifies the software architecture for **PyGame Assignment.** All information regarding the software architecture may be found in this document, although much information is incorporated by reference to other documents.

All the information related to the actual and rough hardcore code will be found in this specific SAD. Any functions used in the PyGame code not listed in this SAD will be found in the GAME CODE itself.

The purpose of this document is to reveal and highlight the specific commands and functions used in the Game Code and further inform the reader about the steps and techniques used in order to accomplish the Game.

## How the SAD Is Organized

This SAD is organized into the following sections:

* **Section 1 (“Documentation Roadmap”) provides information about this document and its intended audience**. It provides the roadmap and document overview. Every reader who wishes to find information relevant to the software architecture described in this document should begin by reading Section 1, which describes how the document is organized, which stakeholder viewpoints are represented, how stakeholders are expected to use it, and where information may be found. Section 1 also provides information about the views that are used by this SAD to communicate the software architecture.
* **Section 2 (“Architecture Background”) explains why the architecture is what it is.** It provides a system overview, establishing the context and goals for the development. It describes the background and rationale for the software architecture. It explains the constraints and influences that led to the current architecture, and it describes the major architectural approaches that have been utilized in the architecture. It includes information about evaluation or validation performed on the architecture to provide assurance it meets its goals.

## Stakeholder Representation

Current stakeholders are:

Bill Sun (responsible for Code Management, System and Software Integration, and plays a role as an auditor.)

Umair Malik (responsible for security engineering, Program Management and Operational System Management.)

## Relationship to Other SADs

Not Applicable.

## Process for Updating this SAD

Any errors and/or omissions should be reported to the PyGame Organization located in Toronto Ontario. Forms are available online and can be emailed and/or mailed by following the instructions online. All errors are handled by the stakeholders and the reader will be notified via email.

# Architecture Background

## Problem Background

Various problems and bugs had to be fixed before the assignment was handed in. Creating walls, which act as barriers, was a tough part of the coding. Pressing keys to change characters, maps as well as weapons created problems for the PyGame team. It was hard to hard code the program to change various items in the game, as it was never done before. The pause function stopped the entire game. We had to fix that as well. The character image has a white background that can not be removed. The team tried using Photoshop but the white background was not removed.

### System Overview

The basic purpose of the player is to be alive until the game ends. Player will be encountering zombies and devils that the user has to avoid. He will be provided with a desired weapon in order to kill the enemies in the game.

### Goals and Context

The primary goal of the player is to kill the enemies and be alive. Weapons like shooting guns will be used in order to survive the levels in the game. It is a survival game.

### Significant Driving Requirements

Some problems were faced when designing and shaping the code for the PyGame Boxhead assignment. One of the major errors encountered by the team was the creating of the walls in the game. Hard coding enabled the game to be professional and meet high standards. Commenting also made it possible to understand the complex code.

## Solution Background

The final code of the assignment is the appropriate and the perfect code without any errors, designed by the team members. We took help from other peers. Online examples also enabled us to fix the problems encountered by the team.

### Architectural Approaches

The experiences learned from the previous assignments and tasks made it possible for the team to design and come up with a hard-code program code without any mistakes and omissions. Professional approaches were made in order to design the code. By implementing new methods such as sprites, the code is more organized.

### Analysis Results

The first check of the code had various problems and errors that had to be fixed. The bugs were causing the code to crash every minute that was not what the team had expected. The bugs and errors were fixed and the final output of the program ran smoothly. The program code was further edited to make the user not only enjoy the game but also get addicted as well.

### Requirements Coverage

Not Applicable.

### Summary of Background Changes Reflected in Current Version

The previous SAD was written when the final code was not designed. The previous SAD Document has been revised multiple times in order to design a SAD which has no errors and no information has been omitted.

## Product Line Reuse Considerations

The creation of walls and barriers that cannot be passed by the player as it is still being created. The new python version had to be downloaded to create the .exe file. The new version caused problems when the program was run. The previous version was re-installed and online steps were followed to produce the .exe file.