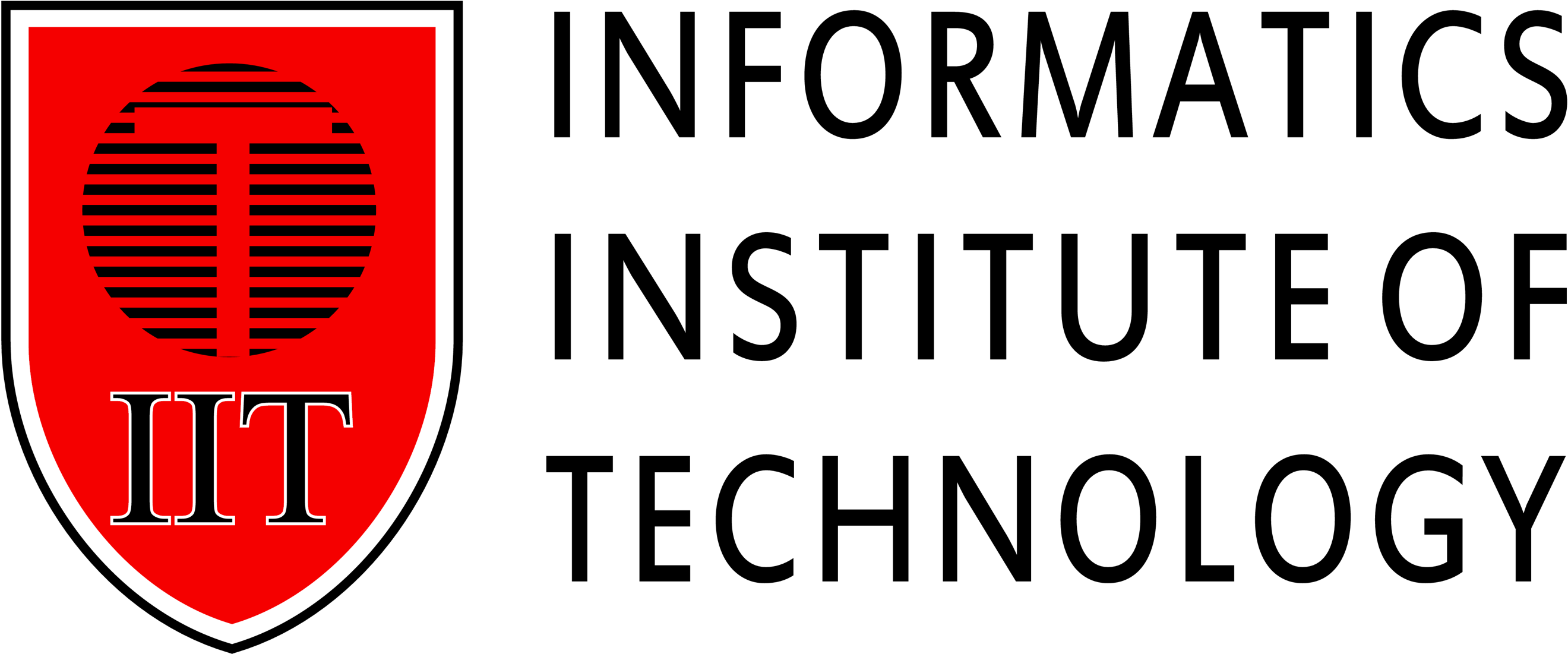
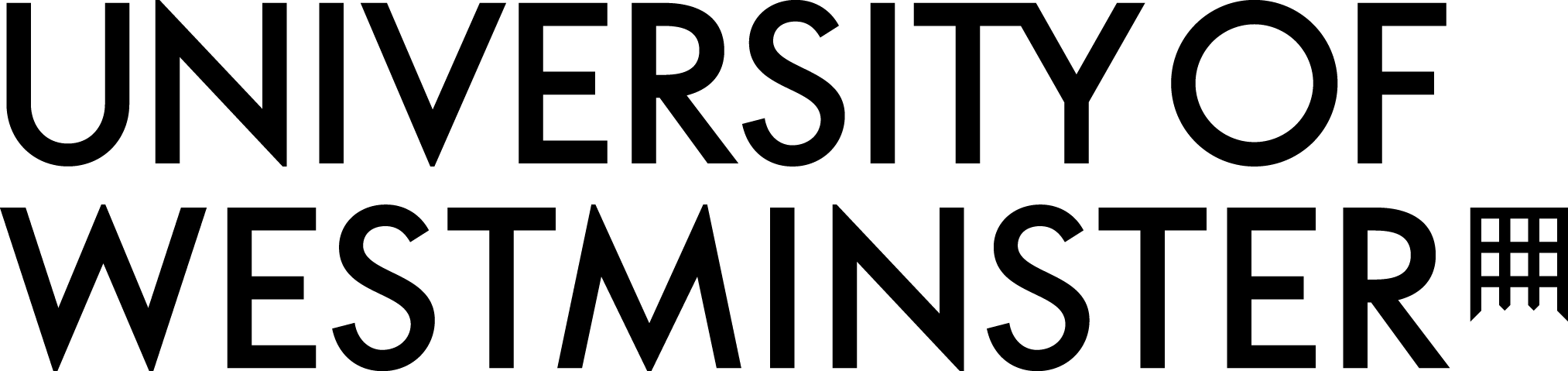
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**INFORMATICS INSTITUTE OF TECHNOLOGY**

**In collaboration, with**

**UNIVERSITY OF WESTMINSTER (UoW)**

BSc/ BSc (Hons) in Computer Science

Final Year Project 2017/18

Project Initial Document

For

**User Experience enhancement in Scrum**

**using Gamification elements**

By

2014081

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Supervised by

Mr. Pumudu Fernando

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Signature of Supervisor Signature of Student

# Project Background

## Introduction

In Software Industry, Rapid Iterative Production Prototyping (RIPP) is an idea that was concaved out of dissatisfaction with waterfall software design approach which often caused to produce outdated products or inefficient product by the time it is being released to the market. In order to achieve higher outcome James Martin, Arthur of Rapid Application Development stated the philosophy focused on quickness in using techniques like prototyping, Iterative development and Time boxing.

Even recently, Agile methodologies are showing a reasonable growth in adaptation in project management area. Mostly due to its RAD development foundation. Under Agile there are different types of Variations in adaptation/Methodologies. Such as; Scrum, Extreme Programming (XP), Crystal, Dynamic Systems Development Method (DSDM), Lean Development, and Feature-Driven Development (FDD). Each methodology has a unique approach while having the common vision and core values which is stated in Agile Manifesto.



Figure : Common vision stated in Agile Manifesto (Agilemanifesto.org, 2017)

All these methodologies contain continuous planning, continuous implementation, continuous testing. In other terms, continuous evolution in both software and project. Methodology which will be chosen by the team varies according to the requirement classifications in the project. Among such, Scrum methodology has shown most effective productivity against the uncertain requirements and in places where there is a large part of the figuring out certain parts in the software.

“The term scrum was introduced in a “*Harvard Business Review” article from 1986 by Hirotaka Takeuchi and Ikujiro Nonaka. It became a part of Agile when Ken Schwaber and Mike Beedle wrote the book” Agile Software Development with Scrum” in 2001*” (Westland, 2017). Scrum is a well define software development process under above mention qualities. But the Problem that the author focus on is, Experience which the developer happens to go through in a Scrum. Even though theoretically it must be positive, there are occasions where developer undergo dissatisfactions due to certain qualities of the Scrum itself.

As an example; Since the product owner has the full authority in deciding which feature should be there and which should not be there, there occurs situations such product owner decided to remove a feature which the developers been developing for quite some time. At moments like this, Developer’s frustration builds up. The author himself has being in a situation as such during his Industrial training period.

This Motivated the author to take this as a final year project problem as it’s a requirement of BSc (hons) Computer Science. Also, author believes that using of proper gamification elements could be the solution for the user experience issues with in the Scrum methodology.

## Define the Problem

Reduction of motivation and user engagement with-in developers due to uncertain decision by product owners and lack of resources within the company.

## Project Rationale

As Scrum was there for some time, there are several occasions where Scrum has been modified into some other hybrid methodologies, such as Disciplined Agile Delivery (DAD). Which is to tackle the filling in the process gaps that Scrum purposely ignores.

But as per combined solution, which is using of Gamification Elements on Scrum, in order to boost productivity first came into play when “Davi Gabriel da Silva” who is certified Scrum Master put forward his idea on avoiding bad practices on Scrum using gamification elements.

He explained that *“gamification is a living trend”* (Scrumalliance.org, 2017).

Gamification was initially introduced to the grab the attention of the customer and to boost the sales outcomes, in recent times almost every software which is built focusing the human interaction has somewhat of a gamification element included. Davi, further explained “*By the end of 2015, he predicts, more than 50 percent of organizations that have innovation processes will gamify them”* (Scrumalliance.org, 2017).

With saying that, purpose of the project is to, give out a positive experience for the developers who are practicing Scrum. To boost the enthusiasm and engagement of the developers which will then give out the productivity as a bi product. In modern days, work space enthusiasm is major concern as per retaining employees for a longer period of time. Which will support the upward progress of the company.

## Problem Domain

As defined by the author, this system only consisted of user experience issues faced by developers in practicing Scrum methodology and Scrum methodology alone. Although there might be similarly methodologies which are somewhat similar with Scrum (methodologies such as Kanban, Agile or DAD) Author does not validate the User experience enhancement in a such system. Because purpose and the solutions is will be only tested under the Scrum methodology practices.

Although the project is more focused on the small-medium size companies where there are only few in the development crew and the resource management is mandatory. Applying the same solution to a large-scale company might not reduce any stability in the solution.

### Persona 1

John is a dedicated Software Engineer who works hard. He was given a certain feature to develop in the project he was working on. John worked day and night to get this feature up and running. Most of the time John ended up fixing minor bugs and refining the feature which was given to him. Few days prior to the launch Product owner decides to remove the feature which John worked so hard.

*In persona 1, John ends up with dissatisfaction as he ends up in a situation where he feels like he has not done anything productive throughout the project period.*

### Persona 2

Julia has been practicing Scrum for a long time and has been on a Scrum team for a long time. Due to lack of resources company wanted to move Julia from team A to team B, but the company does not have any trace of Julia’s pass work within the company or how much of a match would Julia be for the Team B.

*In persona 2, Company has to perform an action without any risk mitigation, as Scrum team perform well when the team member’s personality traits are well synced.*

So far for these types of questions, there is no such solution which is directly addressing these issue, but if existing popular project management systems like Atlassian JIRA, Trello or Microsoft Projects were taken into consideration, they do provide a good project management environment but never keeps historical data in order to produce a Curriculum Vitae (CV) of each team member about their performance.

# Aim

To create a hybrid Scrum methodology, providing a gamified solution for the user experience issues in Scrum. Reduction of motivation and user engagement with-in developers due to uncertain decision by product owners and shuffling team members with other teams due to lack of resources within the company.

# Scope

## Inclusions

As core features;

System will only focus on Scrum methodology. System includes gamification elements in order to boost the engagement of developers who uses the hybrid Scrum methodology which is being put forward by the author. System gathers data of each developer who uses the system and perform an analysis in order to produce a CV, which includes, details of each member and his/her performance analysis. System will be developed as a web application, as it makes the cross-platform expansion much easy.

As other features;

System includes a browser plugin in order to make the system easy to access for developers.

## Exclusions

System will not take other software development methodologies into account as it will only be optimized for the Scrum methodology.

# Objectives

## Research Objectives

* Gather information on different gamification mechanism;

in order to produce the best user experience first task would be analyzing all the gamification mechanisms which have we development up till now and to choose which is best suitable for the Scrum framework

* Analyze the Scrum framework in depth;

To apply gamification machines in the Scrum framework, knowing all the sensitive part in the framework is a must, and to avoid damages to the Scrum framework by any means

* Analyze current software which is practicing Scrum framework

There are several software’s which practices Scrum framework (JIRA, Bitrix24). Which include set of basic features which represent the core features of the Scrum. Analyzing which is necessary and which is additions is a must before producing a new system.

* Analyzing gamification mechanism in depth

It is said that not every gamification mechanism will fit in with everything, need to do a survey to find out which mechanism will be the most appropriating to enhance the experience Scrum for the developer

* Analyze existing systems with the gamification

In order to achieve the expected user experience, it’s always a plus point to analyze the pros and cons in the existing system, which may or may not include gamification aspect

* System comparison after the adaptation of the gamification

Checking the improvements and deteriorations of the system after the adaptations of the selected gamification mechanisms

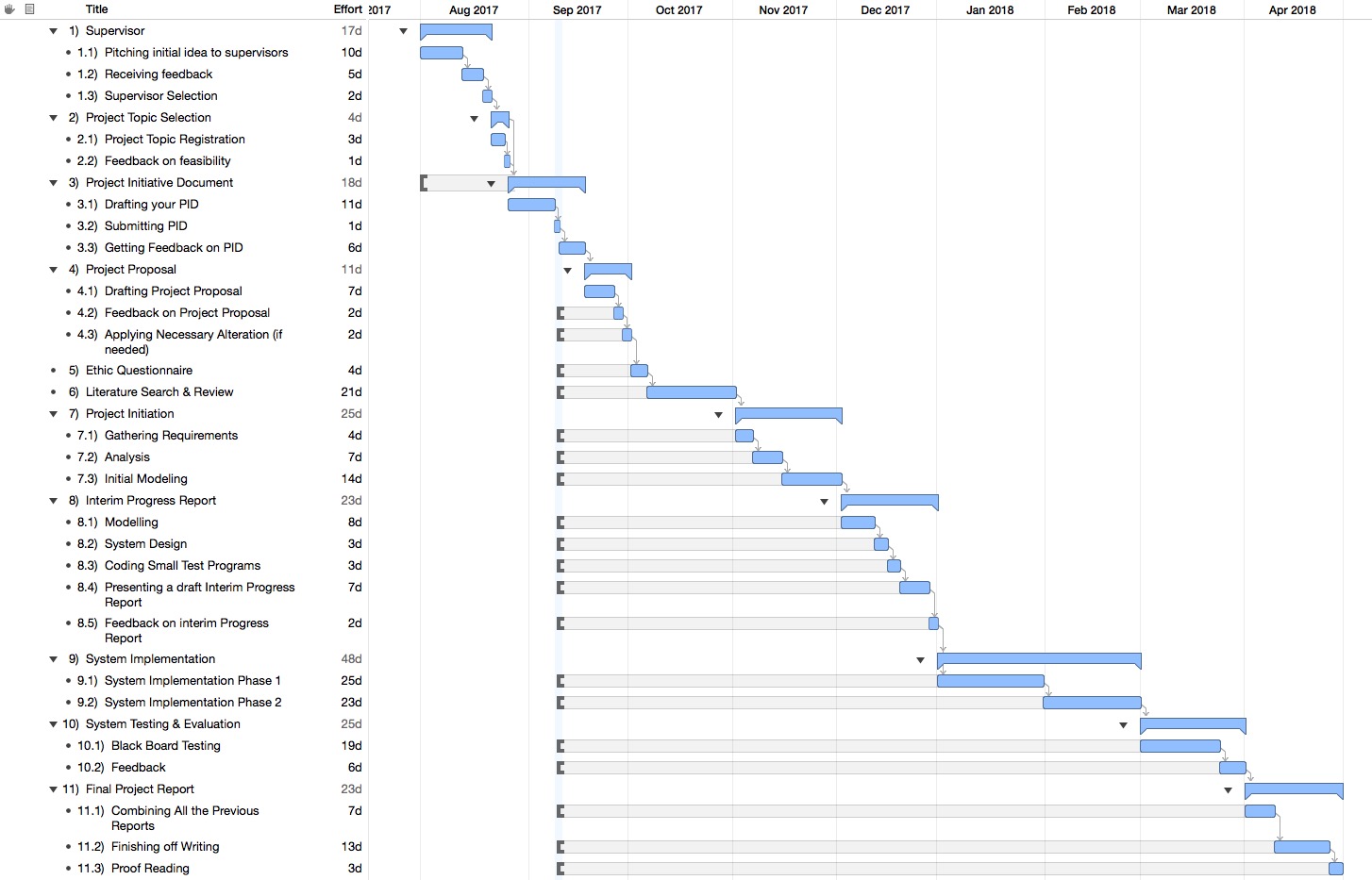
## Common Objectives

# List of Requirements

Web browser (Chrome Preferred)

Average Computer (i3 Processor)

**Time Schedule**



# Bibliography

1. Mora, A., Riera, D., Gonzalez, C. and Arnedo-Moreno, J., 2015, September. A literature review of gamification design frameworks. In *Games and virtual worlds for serious applications (VS-Games), 2015 7th international conference on* (pp. 1-8). IEEE.
2. da Rocha Seixas, L., Gomes, A.S. and de Melo Filho, I.J., 2016. Effectiveness of gamification in the engagement of students. *Computers in Human Behavior*, *58*, pp.48-63.
3. Hsu, C.L., Chen, Y.C., Yang, T.N. and Lin, W.K., 2017. Do website features matter in an online gamification context? Focusing on the mediating roles of user experience and attitude. *Telematics and Informatics*, *34*(4), pp.196-205.
4. Dubois, D.J. and Tamburrelli, G., 2013, August. Understanding gamification mechanisms for software development. In *Proceedings of the 2013 9th Joint Meeting on Foundations of Software Engineering* (pp. 659-662). ACM.
5. Lombriser, P. and van der Valk, R., 2011. Improving the Quality of the Software Development Lifecycle with Gamification.
6. Buckley, P. and Doyle, E., 2017. Individualising gamification: an investigation of the impact of learning styles and personality traits on the efficacy of gamification using a prediction market. *Computers & Education*, *106*, pp.43-55.
7. Robson, K., Plangger, K., Kietzmann, J.H., McCarthy, I. and Pitt, L., 2015. Is it all a game? Understanding the principles of gamification. *Business Horizons*, *58*(4), pp.411-420.

# Citations

1. Lotz, M. 2013. Waterfall vs. Agile: Which is the Right Development Methodology for Your Project?. [ONLINE] Available at: https://www.seguetech.com/waterfall-vs-agile-methodology/. [Accessed 8 September 2017].
2. Chou, Y.K. 2013. The 8 Core Drives of Gamification (#2): Development and Accomplishment. [ONLINE] Available at: http://yukaichou.com/gamification-study/8-core-drives-gamification-2-development-accomplishment/. [Accessed 10 September 2017].
3. Schwaber, K., 1994. Scrum Development Process. Advanced Development Methods, 1, 23.
4. Hamari, J, Koivisto . J, Sarsa. H, (2014). Does Gamification Work? — A Literature Review of Empirical Studies on Gamification. In International Conference on System Science. Hawaii, 2014. Hawaii: IEEE. pp3025 - 3034.

New Citations

1. Agilemanifesto.org. (2017). *Manifesto for Agile Software Development*. [online] Available at: http://agilemanifesto.org/iso/en/manifesto.html [Accessed 7 Nov. 2017].
2. Scrumalliance.org. (2017). *Agile Gamification - Scrum Alliance*. [online] Available at: https://www.scrumalliance.org/community/articles/2014/august/agile-gamification [Accessed 9 Nov. 2017].
3. Westland, J. (2017). *Project Management Methodology - An Overview*. [online] ProjectManager.com. Available at: https://www.projectmanager.com/blog/project-management-methodology [Accessed 10 Nov. 2017].

