Plan Overview

A Data Management Plan created using DMPonline

Title: Scaling Agile with Stable Queueing Systems

Creator: Rob Healy

Principal Investigator: Rob Healy

Project Administrator: Rob Healy

Affiliation: University of Limerick

Template: University of Limerick Postgraduate DMP

ORCID iD: 0000-0002-0598-9968

Project abstract:

Agile software development methodologies, like the Scrum and Kanban frameworks, have demonstrated improvements in productivity, predictability, and morale through their use of dedicated teams and shorter iteration cycles. Agile teams' measurement, monitoring, coaching, and control are done on a whole-team level. Common team metrics are specific to individual teams and, in some cases, are designed to prohibit comparisons between teams. This research uses critical systems thinking to determine if Agile teams can be modeled using queueing theory. The goal is to determine if queuing metrics could provide finer-grained detail for coaches and management and help to improve the flows of work in Agile implementations. This research describes a queueing model of the flows of work in a software development system. This model is test use real-life data to test these models and use them for benchmark creation, comparison and prediction. The extended dataset showed that 79% of Agile systems were unstable. Stable systems can predict a likely date when all the work in the system will be completed. The change(s) required to unstable systems to make them predictable can be identified. The system stability is unrelated to the amount of excess work being performed in it. This suggests that changing stability to improve predictability is unlikely to cause adverse effects from excess work for the people working in it.

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Scaling Agile with Stable Queueing Systems

Introduction

Student Name

Rob Healy

Student Number

20353898

Student Email

20353898@studentmail.ul.ie

Project Title

Scaling Agile with Stable Queueing Systems.

Project Duration

4 years

Research/Data Description and Context

All data will be anonymised, de-contextualised process data from standard system tools in use by software development teams such as Atlassian Jira, Azure DevOps, Bugzilla and so on. We will leverage published datasources, data from organisations that share their data as well as private organisations that share their data.

Defining your data

Where does your data come from?

The data will come from work management tools such as Atlassian Jira, Azure DevOps, Bugzilla and

others. This data can be sourced from past studies and shared on repositories such as Zenodo.

How often do you get new data?

There

How much data do you generate?

Analysis files and images will be in the order of kilobytes to megabytes

What format(s) are your data in?

As mentioned above the data will primarily be in .csv, .txt formats with some python files.
The reason for these formats is portability across platforms

Looking after your data

What different versions of each data file do you create?

For the **Computer Code** there will be different versions and github will be used for version control and peer review. For all other experiments there will be no real versions - just a individual entries

What additional information is required to understand each data file?

As mentioned above each experiment will be accompanied with README files / codebooks describing how the data can be interpreted and the methods reproduced

Where do you store your data?

The data will be stored in three locations:

- Personal laptop with auto-backup to GDrive
- Upload to Ammeon Github
- Periodic upload to University of Limerick One Drive

How do you structure and name your folders and files?

See question above for how the folder structure will appear. For the individual file names descriptive naming techniques will be used.

How is your data backed up?

Data will be backed up in 3 locations:

- GDrive automatically and continuously
- GitHub though code commits
- OneDrive though periodic uploads

How will you test whether you can restore from your backups?

GDrive and OneDrive can both be tested from other locations / devices
Github can bet tested by code pulls to a separate directory

Sharing your data

Who owns the data you generate?

As the project was conducted with the support of Ammeon/intive, EY and WorkMatters, aspects generated in partnership with them will be their Intellectual Property of Ammeon by agreement with University of Limerick. Any participating individuals within the Laboratory Experiments have rights to any PII data collected under GDPR guidelines.

Who else has a right to see or use this data?

Data will be shared with in-company mentor as well as academic supervisors during the research.

What should/shouldn't be shared and why?

All PII data will not be shared.
Post-publication the research data will be published with permission from partnering organisations.

Archiving your data

What should be archived beyond the end of the project?

The code will be archived in public github repositories.
The code will be archived in Zenodo repositories

For how long should it be stored?

Currently Github does not limit the duration of content on it's site nor does charge for storage.

When will files be moved into the archive?

Files will be moved into the archive after they have been published.

Where will the archive be stored?

The archive will be stored on github

Who is responsible for moving data to the archive and maintaining it?

The author is responsible

Who should have access and under what conditions?

The archive will be public and hence accessible to anyone with a github account

Executing your plan

Who is responsible for making sure this plan is followed?

The author is responsible

How often will this plan be reviewed and updated?

The plan will be reviewed quarterly with a major review annually

What actions have you identified from the rest of this plan?

From this plan the actions identified include:

- Create a Github account.
- Test backup and restore
- Continue to design experiments using the structure described