Master Thesis – Statistical Analysis of Software Integration Methods

Background
All telco products contain a large amount of software components, both stand alone and as part of a greater software stack.

When developing software, different patterns and strategies can be leveraged to define each software project. In some cases, large software projects are defined as single entities, monolithic repositories ("mono-repo"), while in other cases as an aggregation of many smaller repositories ("multi-repo").

When integrating these components different strategies can be applied, depending on testing requirements, infrastructure availability, and frequency of new updates. This work aims to define a mathematical/statistical model to describe these strategies, to help calculate appropriate strategies for various setups.

Thesis Description
This thesis is divided into several steps, with the end goal of defining a statistical model to optimize CI setups depending on boundaries and restrictions (e.g., hardware nodes).

The following steps are envisioned as part of the thesis work:
- Investigate and compare any research covering different types of statistical analysis relevant to this.
- Gathering of reference use cases to help define boundaries and gather reference data (e.g., RCS EE, BB)
- Define statistical model and apply to the reference use cases, and check delta to real situations.

The thesis will be concluded with a result presentation for the Ericsson teams involved.

Qualifications
This project aims at students in electrical engineering, computer science, computer engineering or similar. Background in statistical analysis (Mat Stat) is recommended.

Extent
1-2 students, 30hp each

Location
Ericsson AB Mjärdevi, Linköping OR Ericsson AB Kista, Stockholm

Preferred Starting Date
Spring 2023

Keywords
Statistical analysis, Continuous integration,

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