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# Why Do Programmers do What They Do?

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**Abstract**

As trends of preferred programming languages change, programmers have to adapt to match this. However, contention has always been such that there is often an extreme preference between static and dynamic languages. We must understand the psychology behind the decisions and influences of programmers to interpret how these language preferences impact work. This proposal will cover an overview of the project ‘Why Do Programmers do What They Do?’, regarding their language choice, and the output of the project will ultimately present a theory.

# 1. Introduction

This project will investigate why programmers prefer either dynamic or static languages in order to develop an understanding of what influences impact decisions surrounding their technical work. This project will be done using a grounded theory method to find categories that determine their preferences. Interviews will need to take place to collect the data, and analysis on it will then need to occur.

# 2. The Problem

Currently, there is no firm understanding of why some programmers value dynamic programming over static and vice versa. This type of qualitative research is often neglected and overlooked in favour of more quantitative reasoning and technical traits; the processing speed, the programmers task-completion rate [1]. However, programmers provide a human aspect to a technical solution. Therefore, there should be a shift in understanding the more background 'soft' processes that occur when making decisions.

This project aims to implement a theory as to why programmers have a preference between language types by interviewing developers and using the Grounded Theory Method to analyse the outcomes. Exploring this topic is essential as it allows for more understanding on how and why programmers think the way they do, and it builds a more robust understanding of the human and social aspects of Software Engineering [2]. The findings of this can be used to identify what traits developers find as beneficial in a language. This ultimately will allow them to complete their work to a high standard, thus overall making their work of a higher value.

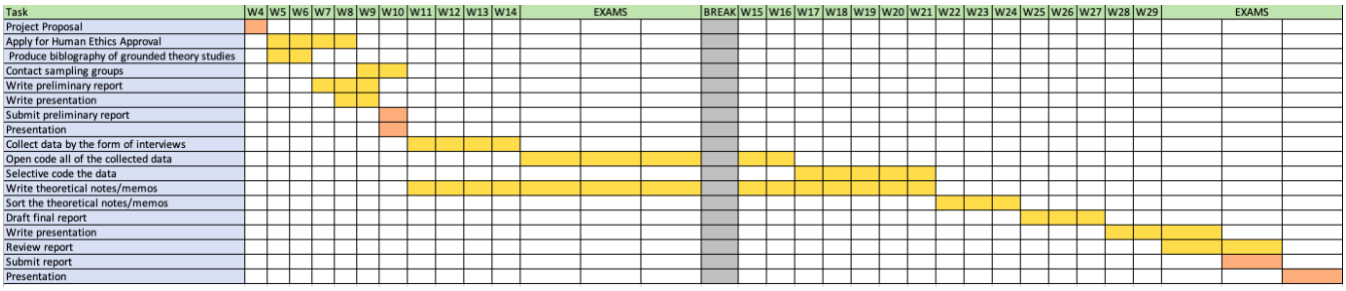
# 3. Proposed Solution

This project will be an informative investigation on understanding the decisions programmers make, therefore obtaining data from actual programmers as soon as possible is essential for the smooth running of this project; human ethics approval will be needed quickly.

When it is approved, contact with the sample group will occur by posting on groups and mailing lists with a request for participation [2]. At this point, I can then start interviewing interested individuals on their preferences between dynamic and static languages.

This project will lead to a deeper and new understanding of the psychology of the decisions made by programmers and the research done by this project could lead to future qualitative research to be done on another under-developed topic on why programmers do what they do. Paired with this research, that future one could help build a profile of a programmer and their thought processes.

**Gantt Chart of the proposed timeline:**




# 4. Evaluating your Solution

Pertaining to the final "coded" groups from this project as the solution, finding a core group will be essential in the evaluation process. A core group is identified in every grounded theory research, and it holds the most common category and is related to the other main categories. Therefore, without a clear common subject, there is an issue with the outcomes of the research, and I will need to go back to find the groups..

# 5. Ethics and Resourcing

## 5.1. Ethics

An ethics application will need to be approved before any work with participants will occur. This will need to be done as soon as possible to start work as a big portion of this project is dependent on the interviews.

The interviews will be confidential rather than anonymous to allow for follow up questions if necessary.

## 5.2. Safety

When conducting interviews, these should be done in safe and private environments, with all participants clear on earthquake and fire evacuation procedures relevant to their location. I will ensure that my own mental and physical wellbeing is taken into account, by mitigating any significant amounts of pressure, Repetitive Strain Injury (RSI) and migraines. Not practicing taking breaks from work will increase eye strain and encourage bad ergonomics which would case RSI and migraine issues.

For both myself, as the surveyor, and for my interviewee's, I will ensure that interviews will be taken between the times 9 am and 5 pm to support work/life balance. Due to the recent covid-19 outbreak, I will offer zoom interviews for those who are unable or unwilling to meet directly. For in-person interviews, I will provide a box of tissues in the room and a bottle of sanitiser.

## 5.3. Budget

Sanitiser and a box of tissues will be needed to promote healthy hygiene practices during in-person interviews.

Vouchers will be rewarded to thank participants for their time. All individuals who participated in the interviewees will be given a $15 voucher to a store of their choice, and all will go into the draw to win a $50 voucher of their choice.

Therefore, the estimated budget for this project will be approximately $300-$445, dependent on the number of participants and the inflated cost of sanitiser.

## 5.4. Space and Access

Access to private meeting rooms on campus will be necessary.

## 5.5. Risks and Hazards

| Risks | Likelihood | Severity | Mitigation |
|---|---|---|---|
| Participants are ill | Moderate | Moderate | Ask many people to participate, so if someone cannot make it, the saturation of available people will allow the development cycle to continue as planned. |
| Covid-19 Lockdown | Moderate | High | Have regular video call meetings with supervisor and communicate with participants via video. |
| Ethics approval takes too long | High | High | Start this as soon as possible to allow for any delays that revisions of the application may cause. |
| Underestimation of project life cycle | Moderate | High | Need to strictly timebox issues and break down tasks into reasonable blocks. |

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|---|---|---|---|
| Failure to obtain relevant data | Low | High | Interview questions need to be planned and revised to ensure that they are relevant to the grounded theory question. |

# 6. Bibliography


1. Michael John, Frank Maurer, and Bjornar Tessem. 2005. Human and social factors of software engineering: workshop summary. SIGSOFT Softw. Eng. Notes 30, 4 (July 2005), 1-6. DOI:https://doi-org.helicon.vuw.ac.nz/10.1145/1082983.1083000
2. Hoda, Rashina & Noble, James & Marshall, Stuart. (2011). Grounded Theory for Geeks. ACM International Conference Proceeding Series. 10.1145/2578903.2579162.