

# Master Thesis Title

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# Preface

The following report was written by Svetomir Kurtev and Tommy Aagaard Christensen in accordance with the conclusion of the tenth and final semester of the Computer Science Master Program at Aalborg University.

We would like to thank Bent Thomsen for the help and guidance he provided us with throughout the development of the project.



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# Chapter 1

## Introduction

Computer programming has increasing relevance to today's advancement of technologies. Therefore, existing and established programming languages are constantly improved and new ones are created to meet that demand. The languages which are considered most suitable for introductory programming, are being adopted by educational institutions as part of their computer science curriculum e.g. Java, Python and more recently, Scratch **TODO: Maybe a reference(s) is needed here** . Similarly, some languages are considered arguably better than others in their intended purpose in the software industry. However, formal evaluation methods for assessing programming languages are very few and limited in their use and most evidence gathered to support such claims are anecdotal in nature.

### 1.1 Initial Questions

## **Part I**

# **Problem Analysis**

## Chapter 2

# Related Work

Programming languages have been used for years but still there has not been established a robust and efficient way to asses and evaluate them. However, plenty of research has been done on the topic and specific papers address that to a different degree as it will be shown in this chapter.

M. Farooq et al. 2014 **TODO: ref needed**, wrote a paper introducing an evaluation framework which provides a comparative analysis of widely used first programming languages (FPLs), or namely languages which are used as a first language for teaching introductory programming. The framework is based on technical and environmental features and it is used for testing the suitability of existing imperative and object oriented languages as appropriate FPLs. In order to support their framework, they have devised a customizable scoring function for computing a suitability score for a given language which helps quantify and rank languages based on the given criterion. Lastly, they evaluated the most widely used FPLs by computing their suitability scores. The novelty in their work stems from the definition of the evaluation parameters as well as the related characteristics to evaluate each parameter.

the novelty of this work is that apart from defining the evaluation parameters, we have also presented the related characteristics to evaluate each parameter, and unlike existing approaches our method strongly incorporates the general programming language rules for this purpose. This effectively helps in performing comprehensive evaluation of a language, as well as may be used to compare the suitability of different languages as an appropriate FPL. We have also assigned scores to the widely used FPLs using our framework. Furthermore, we have also devised a score aggregation function so as to quantify and rank the FPLs based on the given criterion.

## **Part II**

# **Experiment Setup**

## **Part III**

# **Conclusion**

## **Chapter 3**

## **Conclusion**

## **Part IV**

# **Bibliography**

