Application for Automated Collection of Test Files  
 for CSS Class via HTTP and for Local Plagiarism Check:   
Testrek

**by**  
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Submitted in Partial Fulfillment of the  
Requirements for the Degree of  
Bachelor of Mechanical Engineering (Information and Automaton Technology)

in the  
Czech Technical University  
Faculty of Mechanical Engineering



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Czech Technical University  
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List of Acronyms

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| CTU | Czech Technical University |
| CSS | Computer Support for Study |
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|  | Use one table row for each item to allow sorting using Word’s table tools. |
|  | Apply the style **1\_Para\_NoSpace** to table rows as shown here. |
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Glossary

|  |  |
| --- | --- |
| Thesis | An extended research paper that is part of the final exam process for a graduate degree. The document may also be classified as a project or collection of extended essays. |
| Glossary | An alphabetical list of key terms |
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## Introduction

The major motivation for this piece of work comes from the fact that most of the work surrounding the examining of students is still done manually. This dissertation introduces the need, scope and application of automation for reduction of manual work. The software solution described and developed as a part of this dissertation is tend to be designed in a way that it utilizes and requires the least resources and infrastructure for its operation. The application is made as dynamic as possible hence it can be used outside the set scope (i.e. for Computer Support for Study course), if the process of examination can be standardized for that course or subject. Different methods of approaching the automation are also described along with their benefits and shortcomings.

For the sake of simplicity while understanding and explaining, CSS course is taken as an example all through this dissertation to analyze and demonstrate the challenges and solution proposals to different aspects of this or a similar automation process.

When conducted manually, the whole examination process is taken care of manually with the help of up to three or more people. From the preparation of question paper to reviewing the answers from students (most of the times in an unorganized way) and assigning grades. If a course or subject is registered by many students (which in fact is a case for the CSS course), for e.g. in order of hundreds then the whole process becomes even more cumbersome and hard to handle, leading to the slowdown of the review process and requirement of even more manual efforts.

The aim and importance of this dissertation is to provides a good understanding the examination processes where most of the work is done manually along with ways to approach the automations of such nature. The problem that has been addressed in this dissertation is mostly concerned with the organization and automation of the answer reviewing system. Also, a brief discussion on how to achieve operational excellence with the deployment of small and cost effective automations.

The software solution *Testrek, developed mainly in Python* as part of this dissertation can help in organizing the reviewing and running a preliminary plagiarism check on answers from the students involved in the examination or testing of any kind as far as it can be standardized as mentioned in the 2nd Chapter. This dissertation can also be used to conduct further research on automating the sub processes which are out of scope of this bachelor work.

The information is ordered in way so that one can first understand the aim and challenges faced due to the current process and then a description of the solution proposals and technologies used to develop the solution itself.

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## Process Analysis

When conducted manually, the process map of whole examination process is explained using a swim lane chart below, with further information about their scope in this dissertation and a rough estimation of required efforts required to automate the sub processes which are not included in the scope.

* Preparation of question paper by the teacher or instructor.

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Appendix A.   
  
An Example of an Appendix

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