TOPIC: Final year project (undergrad)

DRIVING QUESTION: How can we make the process of finding a supervisor and communication and planning between them and students easier?

AUDIENCE: Students and teachers

GUIDING RESEARCH QUESTIONS:

* What is the current process like?
* What are the needs of the students and supervisors?
* Can the process be more effective?
* What are some credible sources of how effectiveness can be attained?

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# Introduction

The final year project is an essential part of any student close to graduation. It is as important as it is daunting as students are expected to be fully involved in the process whilst still undertaking other units that are equally vital. Currently, a student is required to find a lecturer to be her/his supervisor. Initiating communication and meet ups is also left to the student who should be able to fit and complete all that is required before predefined deadlines. This research proposal will show why the university needs to improve and offer further assistance to smoothen the process that comes with implementing final year projects. This proposal investigates the use of a system that will effectively match students to appropriate supervisors and provide a platform for the involved parties to communicate better. This is to ensure that there is effective handling of the students’ project and appropriate guidelines by which both students and supervisors should follow to avoid mishaps. Another benefit will be the alleviated stress off the students’ shoulders.

# Problem statement

At Jomo Kenyatta University of Agriculture and Technology (JKUAT), there is a gap in the execution of a well-structured approach to conduct final year projects. The process is manual, time-consuming and inefficient. This approach works fine, however, a lot is overlooked. For instance, a mismatch may arise between the dedication of the supervisor and the dedication expected from the student, which may affect both their satisfaction with the supervisor and the competences developed during the process. Other issues that may arise is the rejection of students by the supervisor of choice, reluctance to meet for supervision planning, choosing a supervisor with no expertise on the topic of one’s proposal among others.

Our application aims to alleviate these problems by creating a platform that matches student to supervisor based on the former’s topic of choice and the latter’s expertise on it. Our application will also give the involved parties a common ground to communicate and plan out the supervision process.

Research Questions

This research aims to answer the following questions:

1. What are the needs of the students and supervisors in the supervision process?
2. How can we make the supervision process more effective?
3. What are some ways in which this effectiveness can be attained?

Research Objectives

This research is expected to achieve the following objectives:

1. To conflate and relate necessary requirements of the supervision process and incorporate that into our application
2. To find the most suitable approach in regards to which algorithms to use, languages, type of platform et cetera
3. To come up with effective solutions to the limitations of the current approach to supervision

# Justification

As of the moment of writing, we are not aware of any existing student-supervisor matching system(s) that is/are implemented in tertiary institutions in Kenya. This poses a void during the most critical juncture for every graduate. The systems that are in place are not efficient and with the increasing student numbers, matching students to suitable supervisors is becoming cumbersome. More so, identifying the most appropriate supervisor for your project based on the limited period of interaction student have with the lecturers is highly inefficient. The individual selection tends to be biased and skewed due to insufficient information about lecturers.

This project seeks to digitize the current system that is in place and implement a sophisticated matching system to help identify the most appropriate supervisor for a particular student. This will ensure that students end up being paired to the most relevant supervisor for his/her project ensuring that the decision is not skewed. Most of the functions will be automated to ensure that the task is stress-free and fast.

# Relevant literature

Relevant Literature

Several techniques have been used to tackle this problem. Each focus on specific tasks. Categorical matching, keyword extraction, fuzzy logic … have been used before with each having its own limitations

Keyword extraction involves extracting of the most important and relevant words in a pool of text. This allows for a dynamic system that can process new information implicitly. Having to work with a huge body of text, computation power becomes a huge bottleneck if the right techniques are not used to handle the computation. Using WordNet ontology proves to be such an efficient way to match keywords. TF-IDF (Term Frequency-Inverse Document Frequency) has proven to be useful on handling large body of text. Bayesian models like naïve Bayes have is very fast to process large body of text in real time. For any particular recommender system, there is need for a metric to rank the suggested items. Both TF-IDF (Term Frequency-Inverse Document Frequency) and naïve Bayes are good metrics for ranking. Term frequency basically looks at how many times a give word is used in a particular document or article. The inverse document frequency penalizes the appearance of common words that appear in other documents or articles and this result to more meaningful words.

Fuzzy logic counters the limitations of the traditional logic. Traditional logic is either a 1 or 0. Using this type of logic posses a huge problem in ranking Fuzzy logic offers a solution to this by having a scale from 0 to 1. This allows for different adjustment of the conditions linearly. This offers a flexible metric for ranking and it is semantically comprehensible than the binary 1 or 0.

# Research methods and design

Mixed methods will be used to satisfy some of the application requirements. A combination of the following will help us come up with these requirements:

1. Secondary Data Analysis / Archival Study – several reading materials including books and articles will be consulted so as to limit the scope of search strategies we could apply and find a suitable one given the application’s needs.
2. Experiments – will be used to determine ways in which we will implement the desired effect of what our application is to output and how to provide and execute a workaround for any weaknesses we might encounter.

# Schedule

# Budget

|  |  |  |
| --- | --- | --- |
| **Item** | **Description** | **Amount** |
| Internet | To be used for research and development of the proposed application | Ksh. 4,000 per month for a period of six months |
| **Total** |  | Ksh. 24,000 |

# Conclusion

# References

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