upGrad

LIVERPOOL JOHN MOORES UNIVERSITY

Research Proposal Structure

Data Science and AI/ML

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Structure

Table of Contents

Related Works

Structure

Abstract

Six key elements

1. Introduction and background of the study
2. Problem(s)
3. Method(s)
4. Purpose
5. Expected results
6. Conclusions

Structure

1. Background	1. Background of the domain 2. Relevance to previous research 3. Problem(s) 4. Purpose of your study

Structure

2. Related Works

1. Detailed or specific to the development of your proposal
2. Trends and/or research areas
3. Methodology or approaches
4. Findings

Structure

3 & 4. RQ & Aim & Objectives

1. Research Questions – What you want to do?
2. Aim – What are you doing?
3. Objectives - How are you doing it?

Structure

5 & 6. Significance & Scope	1. What the study contribute? 2. Who will benefit? 3. Why you did not consider? (Scope)

Structure

7. Research Methodology

1. Introduction
2. Dataset description
3. Data preprocessing
4. Transformation
5. Models
6. Evaluation metrics

Marking Scheme/Assessment Criteria

Assessment Criteria	**% weighting**
Title	3
Aim & objectives	7
Background	10
Related Works	15
Methodology	30
Expected outcomes / deliverables	5
Required resources	5
Plan of work	10
References	5
Presentation & quality of report	10
Total Marks	**100%**

Tips!!!

In which order do you write your proposal?

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6	Abstract	2
5	1. Background	3
1	2. Problem Statement	5
2	3. Research Questions (IF ANY)	7
	4. Aim and Objectives	7
4	5. Significance of the Study	8
	6. Scope of the Study	8
3	7. Research Methodology	9
	8. Required Resources	12
7	9. Research Plan	13
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Most of your Aim & Objectives will have these issues

Aim & Objectives

Objectives

1. Objectives too lengthy….
2. Looks like deliverables.
3. Many objectives

Aim & Objectives - Sample

Aim and Objectives

Clear aim

The main aim of this research is to propose a model to predict the occurrence of breast cancer based on their risk factors. The identification of the breast cancer incidence using the well-studied risk factors allows for a quick and cost-effective diagnosis and the recurrence of this disease can also be predicted based on the disease model generated.

Primary goal

The research objectives are formulated based on the aim of this study, which are as follows:

Analyzing →
- To analyze the pattern and relationship between the risk factors of breast cancer via visualization to improve the comprehensibility of diagnosis for clinicians and patients.

Pre-processing →
- To suggest a suitable balancing technique that can be applied on the imbalanced dataset.

Models →
- To compare between the predictive models to identify the most accurate model to classify breast cancer occurrence based on its risk factors.

Model evaluation →
- To evaluate the performance of the classifiers based on the balancing techniques.

Aim & Objectives - Sample

Aim and Objectives

Clear aim

The main aim of this research is to develop a personalised blood glucose prediction model using only non-CGM data. The goal of this research is to contribute to the vast majority of diabetic patients that do not use CGM for self-monitoring of blood glucose levels.

Primary goal

The research objectives are formulated based on the aim of this study, which are as follows:

LR →
- To investigate the performance of existing blood glucose prediction models developed using non-CGM data

Model →
- To develop a personalised prediction model using only non-CGM data

Model evaluation →
- To evaluate the performance of the proposed blood glucose prediction model

Aim & Objectives - Sample

Research Aim and Objectives

Clear aim

The aim of this research is to propose an approach to enhance the projecting capability of the Lee-Carter model and fit the model to the Mauritian mortality data from 1984 to 2018[1]. The goal of this study is to forecast the mortality rate of Mauritius and provide solutions to insurance companies and pension providers to alleviate the effects of ageing population.

Primary goal

The objectives of the research are outlined as follows.

LR →
- To investigate state-of-the-art approaches to the Lee-Carter model used in modelling and forecasting mortality rate.

Pre-processing →
- To determine the optimum technique to estimate the parameters of the Lee-Carter model.

Models →
- To propose a deep-learning model to forecast the mortality index parameter.

Model evaluation →
- To evaluate the performance of the Lee-Carter model.

How to write a quick related works?

Related Works

1. Search for “Survey” [or] “Review” [or] “Literature Review” [or] “SLR”
2. Minimum FIVE recent papers

Related Works

S. No	Year	Title	Author(s)	Dataset	Problem(s)	Purpose	Preprocessing	Algorithms	Evaluation	Summary	Remarks
											Include future recommendations

Don’t do this in Research Methodology?

Research Methodology	1. Explaining CRISP, KDD … 2. Detail explanation for a particular methods or techniques (ONLY in proposal)

Q & A

“Every project is an opportunity to learn, to figure out problems and challenges, to invent and reinvent.”

- David Rockwell

Read more at https://www.brainyquote.com/topics/project-quotes