Proposed publications for SES program at UIN 2024
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I accepted an invitation to help improve the skills of the lecturers in the Information System Department. Further I was asked to assist of the Implementation of courses in the field of the latest IT technology, e.g. information system administration, project design, system integration, development of IT curricula and to recommend documents for the University (standard literature for comparable technical courses), recommend Information about e-commerce and documents for the University. In addition to this assist in planning and implementation of workshops on teaching and learning and related Documents recommended for the University.

I started to respond to this invitation designing a course scheme for the IT department without knowledge beforehand of the size and quantity of these courses and capacities of the department concerning students and lecturers.

Further I will contribute with some of my specialized publications related to the demands of the Mathematics Department by hoping to improve the analytical capacity, especially on statistics, modeling and also improving the understanding between information in science. Because gathering information does not mean that the results of the attempted goals are reached but this will need improving the analysis and underlying and presumably hidden structure of the information.

The experience of the scientist is that many deductions can be made. The analysis can be achieved by valuable statistics. There are some well-proven measures and tools to improve the knowledge base and classify the results but it's not in itself the golden path. The messages of the analyst and also the model methods and the techniques can be intimidating for the layman and can also be misleading, if the expert attempts to convince the public on something the experts meditated beforehand. The goal of the related academic education should be to widen the horizon of the students, be critical of information and deductions (hopefully also to the lecturers) and keep them critical but also open new tendencies. The author will be very grateful if the faculty can accept some of the recommendations in this proposal incorporate some subjects into the curricula or adapt and incorporate some of the publications of the author.

Thanks again for the invitation and the welcoming acceptance in the faculty and the University and I hope I can repay it with some of my present and past experiences.

Profile of Graduates Computer Science Degree Program Faculty of Science and Technology UIN

Goal: to acquire expertise in the study, transformation and modeling of data with the aim of finding useful information, drawing conclusions and supporting decision-making.

Data Scientist

Work involving a combination of computer science (programming), statistics and mathematics aimed at collecting, interpreting and analyzing large structured and unstructured data sets.

Manager Computer Technology

Acquire expertise in assessing the need for peripheral components of computer systems, understanding microprocessor circuits and the level of processor requirements needed.

Manager Systems and Programming

Acquire experience in managing software and hardware systems in the planning, modeling, analysis, development and testing of systems. Able to maintain the system created and perform system upgrades and system engineering.

Ulul Ilmi-graduates

Ulul Ilmi graduates are graduates who have a broad and deep knowledge. It will form graduates who are able to develop and apply science and technology in everyday life. Ulul Ilmi graduates also have the ability to think critically and analytically and make the right decisions in complex situations. They also have the ability to communicate well and collaborate in teams. Ulul Ilmi graduates also have a high level of integrity and always strive to improve the quality of themselves and those around them.

Foreword

This is the **Profile of Graduates of the Computer Science Degree Program** of the faculty of Science and Technology (which I translated – hopefully correct- from Bahasa Indonesia). The first phrase of this profile is about the acquisition and the study of data and this general goal will include many things apart from structuring the education but also enabling the students to acquire conclusions and support their decision making. So the subject of this will actually allow incorporating many knowledge facets which are not really unique for data science or for technology but also includes statistics, planning and modeling, analysis, development of testing assistance. In this context, I like to propose one translated and adapted publication and a couple of my own publications. My publications are uniquely my own which can be adapted for publication (the journal) or training or other purposes.

The first proposal

This is an adaptation of a textbook on Computer Science (CS), selected chapters of which I translated and adapted for my assignment in Medan. This is not meant as a publication as it is not based on my own experience, but I would like to propose is as a basic of courses for introduction to CS.

Computer Science for Beginners- The Textbook Paperback - October 4, 2023 Original title: Informatik für Dummies. Das Lehrbuch (in German) By Wiley- VCH/ United States/ Hoboken, New Jersey

About the series of "Dummies" books: **For Dummies** is an extensive series of instructional reference books which are intended to present non-intimidating guides for readers new to the various topics covered. The series has been a worldwide success with editions in numerous languages.

The author: E.-G. Haffner (Author): German Professor Department of Technology Trier University of Applied Sciences; subject areas: Mathematics; Computer Science; Information Security.

The content of the book: Students of bachelor's degree programs at colleges and universities where computer science appears in some way in the curriculum can rejoice. This book provides you with a comprehensive overview of practical, theoretical and technical computer science - as simply, quickly and entertainingly as possible. You can use the book as a supplement to lectures or for self-study. The author knows the typical problems students face. Overcome your fear of formalisms. Discover the appeal of computer science! This is the perfect book to get you started in computer science.

I propose the following Chapters of the book; the complete text is in the reference. The original book I will leave with: **Adam Pamma** - Makassar, Sulawesi Selatan, Indonesia / country representative of SES – fluent in German.

- Part 1 An introduction to programming language is and the structure of programming languages (Chapter 17)
- Part 2 A comprehensive course on Python language (Chapters 29-32)
- Part 3 Designing and Designing and creating on the web (Chapter 47)
- Part 4 On scripting languages (Chapter 48)
- Part 5 On Artificial intelligence (Chapters 41-42)

The second proposal:

Since the courses of the faculty of science and technology focuses on some statistical methods for analysis, it might be the side effect for some participants to refresh old theory and gain new insight into some elementary statistical methods. This document of a course addresses the beginner to SPSS as well as the experienced SPSS user; it assumes that the participant is equipped with a basic statistical background. The result should be that the participants are familiar with some basic concepts of SPSS and understands the use of some more sophisticated methods to analyze data for poverty statistics. In addition it introduces to the basic knowledge of forecasting and regression in a simple and straightforward way to pen up for further and more sophisticated methods of modelling.

Poverty analysis with SPSS, Klaus Röder 10.11.2004 (See Bibliography)

The third proposal:

Abstract:

This document is part of the results of consulting contract between SAL "Consultoria em Desenvolvimento Social Lda" and the author. All rights of this document belong to SAL and to the author, all shortcomings and errors should be attributed to the author alone.

One of the objectives of this work was to analyze the behavior of families in the Metropolitan Area of Maputo concerning the consumption of Water. This behavior, it is felt to be heavily dominated by economical aspects. The first task was to define groups of economic status, usually called wealth groups. The data derived from the analysis of the survey should not be confounded with poverty figures derived from Household Surveys [6]. Whereas the later poverty figures are based on consumption figure, the index of economic strength is a proxy index based on household assets available. The objective of this document is also an introduction to factory analysis which will be used in further documents and is an important tool for modelling complex question about results not being easily connected to a set of independent variables.

Factor analysis is a statistical method that is used to investigate whether there are groups of underlying latent (independent) variables, or factors, that can explain the patterned correlations within a set of observed (dependent) variables. For the examples calculated the version SPSS 10.0.7 was used

The Use of Water as an example to introduce Factor analysis, Klaus Röder 04.06.2007 (See Bibliography)

The fourth proposal:

In addition to the second document and proposal, there is another publication allowing analyzing the question of poverty in more depth. If you don`t know the subject well you are analyzing, projecting and modelling you might go astray, so as an introduction let's start with some basic considerations.

Some questions: What is poverty? The earliest definitions of poverty centered on the inability to obtain adequate food and other basic necessities. Today, the main focus continues to be on material deprivations, i.e., the failure to command private resources. Development experts, including [33], though, have argued that this notion of economic welfare remains too narrow to reflect individual well-being, spurring active efforts over the past several decades to expand the concept of poverty.

Some basic findings: Not surprisingly, a single, all-encompassing measure of poverty remains beyond reach. Recognizing the trade-offs between different methods of measuring poverty, researchers are now seeking compromises by integrating qualitative and quantitative indicators into their analyses.

Some basic deductions: Despite all this, social scientists still find it useful to focus largely on poverty as a lack of money measured either as low income or as inadequate expenditures. One reason for focusing on money is practical: inadequate income is clear, measurable, and of immediate concern for individuals. Another reason is that low incomes tend to correlate strongly with other concerns that are important but harder to measure.

This document will allow an in-depth treatment of various aspects of poverty but is regarded in general as an indicator of human-well-being. It is a rather technical approach and might not cover all aspects of human conditions and suffering. But as a contribution to the faculty of Science and Technology it might be the suitable method. The tools used are like in previous proposals SPSS but also the software extension StatistXL for EXCEL, which is powerful and was and still is free of charge.

Statistical Poverty Analysis, Klaus Röder 07.05.2009 (See Bibliography)

The fifth proposal:

This paper deals with statistical methods to analyse and prevent disasters in India staring with prominent types of natural disaster scenarios: Earthquake, Flood, Cyclones and Agricultural Drought. Here we will also analyse (statistically) some of the effects of best practices to cope with disasters in the past. Here we will consult available statistical information on prevention, mitigation and other phases of disasters.

In part1 of this paper we will see that earthquakes (and cyclones) demanded the highest number of victims in the past, whereas floods (and cyclones) cause the most severe losses of goods.

This paper continues with maps and summary statistics showing various types of disasters and risks in India.

In part2 we will introduce statistical terminology about frequency and risk. However we will limit this terminology to the context which relates to Disaster Risk Management. The purpose of this module will be to find, read and interpret data on frequency for disasters and to relate it to the human and economic loss caused by the disasters. We will look at the risk and frequency of past disasters under regional aspects, as expressed by statistical information.

This section tells about the past disasters in states under statistical aspects. Which disasters had occurred at the highest risks or outside the risky periods, which ones affected people the most and which caused the most economical damage and which effects were probably mitigated by preparation and foresight. This module will hint at regions with best practices to cope with disasters in the past. Here we will again consult available statistical information on prevention, mitigation, response and recovery in selected areas

Use of Statistical Methods to Analyze and Prevent Natural Disasters in India, Klaus Röder 24.04.2012 (See Bibliography)

The sixth proposal:

Background

The author was invited to develop and supervise the e-learning part of the blended learning course and the subsequent face-to-face held by **GIZ** and the learning Platform of **InWent CG21** (later to be integrated into GIZ). An International Blended Learning Course: e-learning course (22April -31 May 2013) for African development experts and technicians and the subsequent face-to-face course in Gaborone/Botswana (June 24 - 28, 2013)

Course content:

The online course had duration of six weeks. The participants were invited to this e-learning course. The first list of applicants included more than 100 participants. The number of approved participants was 40.

Approximately 25 participants finally took part in the e-learning course. Of these, 20 participants were invited to the face-to-face course.13 participants from 10 different African countries were able to accept this invitation.

The author compiled this Handbook. It was compiled to assist the users and participants of the course "World of Development and Statistics". The course was Web based and has the goal to show how statistical information and analysis can improve knowledge and insight into what Development is about and what it should stand for: An improvement of the Living conditions of mankind independent of location, belief or race. Development professionals should learn to make use of statistical information for their field of work. No expertise of statistics was expected of the participants and the exercises where prepared so that basic knowledge of EXCEL and reading and understanding scientific textbooks should suffice for a successful participation.

The final part of this Handbook concentrates on Regression Theory. The Factor and Principal Component Analysis are rather specific cases of the general Regression Model. So the principal emphasis is laid on explaining the theory and the reason why to use.

In brief this is a compendium of statistical theory and applications for the analysis of data useful in an university environment especially in a faculty as "Information and Science" of the UIN

Handbook World of Development and Statistics, Klaus Röder 08.02.2013 (See Bibliography)

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