NTNU
Norwegian University of
Science and Technology

Assignment 2
Research paper draft

IT3010 –Empirical research methodologies in IT and digitalization[1]
(Spring 2022)

Contribution to final grade	10%
Deadline	April 1, 2022
Maximum number of pages	4 pages in IEEE format. See EReMCIS call for papers (CFP) for more information.
What to deliver	One PDF file per group, in EasyChair **AND** in Blackboard. See Blackboard for information about using EasyChair.

Learning objectives in focus[2]:

Learning objective	What you will learn
2, 3, 4, 5, 6, 7	You will learn to complete a research project based on a research proposal, write a research paper, and submit a research paper to a conference.

[1] https://www.ntnu.edu/studies/courses/IT3010
[2] See Blackboard for an overview of learning goals. This overview also shows you what part of the syllabus can help you achieve the learning objective.

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Introduction

In this assignment you will summarize the research you have done in the form of a **four-page** research paper. Your paper submission must be in IEEE format. Follow the steps below:

1. Format your paper according to the IEEE standard[3]. Read the EReMCIS call for paper document under Assignments in Blackboard.
2. Submit your draft paper to EasyChair as a **4-page** PDF (formatted according to IEEE standard). When submitting your paper on EasyChair, **one of the group members** should upload it and put the other group members as collaborators. The EasyChair upload page has specific fields for adding collaborators.
3. Upload a **5-page** PDF to Blackboard (the paper in IEEE standard + a front page based on the standard assignment template). You do not need to change the formatting of your 4-page EasyChair paper. Just create a single front-page PDF using the first page of the assignment template (filled in with your data), merge the two PDF files and upload the merged 5-pages file to Blackboard.

Please make sure you include the following sections in your research paper draft (abstract, introduction, background, methods, results, discussion and conclusion).

Abstract

This is a mini version and a summary of the whole paper. Try to shortly mention practical problem, research question, method you have used, and summary of your contribution (i.e. what is new here).

Common mistake when writing an abstract is that authors focus only on motivation and problem and forget what the contribution of the paper is.

Introduction

This is where you shortly discuss the practical problem and motivate for its importance, mention your research questions fully, and describe shortly what the readers should expect from the paper, i.e. its structure and contribution. It is also important that you define the main concepts/words you use in your research, e.g. "fog computing", what is it? "Cookies" what are they? "Deep learning" what is it?

Common mistakes relate to too much details, failing to motivate, failing to say what is new.

Background (also called related theory, related work, state of the art etc.)

Here you need to

1) Show what relevant research exists addressing the same or similar research questions. Here you normally cite and quote some research papers and say why they are relevant for your research.
2) What are the limitations of the existing research that you will try to address? Here you mention the gap in knowledge you want to fill and show how your research questions are adequate to filling this gap.

[3] See https://en.wikipedia.org/wiki/IEEE_style for template

Common mistakes are that a) you cite only non-research papers, e.g. blogs, newspapers etc. and b) you don't show how what you refer to relates to your research.

Methods

Here you need to describe your **research strategy**, your **data generation methods**, and your **data analysis methods** (see the book for definition of each of them). You need to argue shortly for why you chose these and not other relevant strategies and methods. Note that the methods you choose need to be capable of answering your research questions, so you can argue based on your research questions.

Common mistakes are a) you don't mention one or more of the three elements above, b) you don't describe why you chose exactly those three and not others that would be a relevant choice. Again, note that your choices of strategy, data generation and analysis methods should be dependent on the research question you want to address.

Results

Here you need to present the data you have generated/collected. You can also do some preliminary analysis/interpretation here, e.g., group your data into topics or show interesting overviews of your data. The focus is on data you have collected from e.g., interviews, observations, documents etc.

Typical mistakes: Data is presented in an unclear way, with data that does not relate to the research question you want to address. Focus on results that are relevant to your research question and that are clearly presented to the reader.

Discussion

In this section you need to say:

1) What your data/results really mean.
2) How the data help you address the research questions.
3) Why and how what you found is new compared to existing research. (i.e. what is your contribution?) How do your findings extend research you cited in your background section?

Typical mistakes: You write a summary of your findings (again), you don't address research questions, you don't state your unique and novel contribution with respect to current state-of-the-art.

Conclusion

Here you summarize the main message of the paper, thank everyone who helped you, and importantly:

1) Say what are the limitations of your research. (e.g. "We did not have enough data", "We did not do a thorough analysis of our data" etc.)
2) Say what new ideas or further research your paper opens for (e.g. "It would be interesting to run a similar study and ask question X").

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Assessment

This assignment contributes to 10% of your total grade.

Section	Evaluation criteria
Abstract	- Is the abstract motivating? Is a short motivation for the research given? - Is the practical problem mentioned as part of the motivation? - Does the abstract say what research strategy/design is used? - Does the abstract say what the findings are? - Does the abstract say what the relevance of the findings are?
Introduction	- Does the introduction have a clear and motivating practical problem? - Does the introduction clearly state the objective of the research? - Does the introduction have clearly formulated research questions? - Does the introduction define all central concepts without going into details?
Background	- Does the paper refer to and properly use 3-4 relevant research papers? - Does the paper show clearly the relevance of the cited papers?
Methods	- Does the paper clearly state what research strategy is chosen? - Does the paper clearly state what data generation methods are chosen? - Does the paper argue for why the strategy/data generation methods are adequate? - Are the details and the specifics of the methods described? - Are data analysis methods described and are they adequate?
Results	- Are findings represented in a structured way using themes/graphs/tables? - Are the data convincingly described? Are relevant details in place? - Are the data analyzed in a relevant and proper way related to the RQs?
Discussion	- Is the discussion based on the findings and not ungrounded opinions? - Does the discussion go beyond merely listing the findings? Are findings discussed? - Does the discussion bring in the referenced literature from the background? - Does the discussion go back to RQs and address them?
Conclusion	- Does the paper mention limitations and future work?
References	- Is the reference list formatted properly and contains all bibliographic data?