Research Foundations in Computer Science

Unit VIII

Writing Your

Research Proposal

Review of Previous Weeks

- **The concept of research**

- **Importance of research**

- **Finding previous research**

- **Finding current research**

- **Reviewing the literature**

- **Identifying a research problem**

- **Developing research objectives**

- **Identifying potential research methods**

- **Determining user requirements**

- **Planning your research project**

Where you should be

- ✓ **Identified an area of research**

- ✓ **Compiled a preliminary bibliography of published materials related to your research area**

- ✓ **Analyzed the literature on your area of research**

- ✓ **Identified a research problem to be addressed**

- ✓ **Set objectives for your research project**

- ✓ **Drafted the first section of your research proposal**

- ✓ **Drafted the methodology section of your research proposal**

Outline for Today
The Research Proposal

1) **What is a research proposal**

2) **Why write a research proposal**

3) **How to write a research proposal**

4) **Writing a good proposal**

5) **Contents of a research proposal**

6) **Order of writing a research proposal**

7) **Assessing a research proposal**

8) **Shortcomings of research proposals**

1) What is a research proposal

– **The what, why and how you are to carry out your research project**

– **A detailed description of the procedures that will be used to investigate your topic or problem**

– **A document to convince others for the need for the project, the ability to carry it out, and a work plan**

– **Contains extensive literature review**

2) Why write a research proposal

- A plan for what you want to do

- The first stage of your research
  A journey of a thousand miles begins with one step

- A 'contract' with your Supervisor

3) How to write a research proposal?

– A good proposal covers four main issues – A, B, C, D:

- **Aims of research :**
  - ✓ What am I going to do in my research?

- **Basis of research :**
  - ✓ Why am I doing this research?
  - ✓ Who else has done research like this? And, what did they do?
  - ✓ How is my research different from the others?

- **Contributions (Significance) of research :**
  - ✓ Why will this research be significant to the academic community?

- **Design of research :**
  - ✓ How am I going to do this research?
  - ✓ How am I going to build a system?
  - ✓ What tools am I going to use to build it?
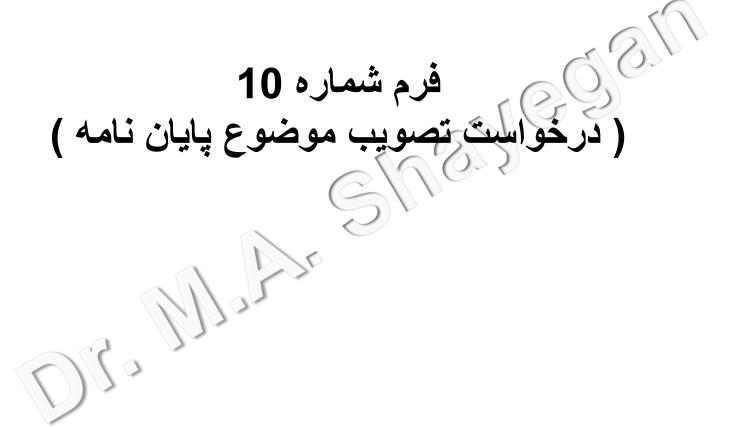 - ✓ What will be the evidence as to whether it is a good system?

4) Writing a good proposal

- Ask lots of people (colleagues, friends, …) to help you for improving your proposal.

- Listen to what they say.

- If they cannot understand, re-write.

- Ask them to read within 10-15 minutes for the first time, and tell you what they think; most potential supervisors will spend less time than that.

4) Writing a good proposal (Cont.)

- Start today !
- Work on it <u>every day</u>, even if it is just 15 minutes a day.
- Read widely, especially research literature
- Set small, specific, achievable goals to achieve
- Write well (i.e. follow the rules of good writing)
  - **no spelling mistakes,**
  - **good grammar,**
  - **one idea per paragraph,**
  - **…**

5) Contents of a research proposal

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فرم شماره 10

(درخواست تصویب موضوع پایان نامه)

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تذکر :

برای مطالب بیشتر ،

حتما فصل سوم فایل روش تحقیق ،

صفحات 18 الی 35

تهیه شده توسط آقای دکتر تهور را مطالعه نمایید.

6) (Suggested) Order of Writing a Research Proposal

- ✓ **Develop outline of proposal**
- ✓ **Compile bibliography**
- ✓ **Select relevant items from bibliography**
- ✓ **Read and make notes for ideas, problem statement, objectives, methodology, findings, key works**
- ✓ **Write draft problem statement**
- ✓ **Write objectives**
- ✓ **Write Literature Review chapter, and References**
- ✓ **Write Methodology chapter**
- ✓ **Write Introduction chapter**
- – **Write Abstract**
- – **Prepare End Materials**
- – **Update References**
- – **Review and revise**
- – **Submit to peer(s) for review**
- – **Revise and submit to Supervisor**

7) Assessing a Research Proposal

- **Questions in assessing a research proposal**

– Is it a research problem, or is it just a routine application of known techniques?

– Does the proposal address a well-formulated problem?

– Is it an important problem, whose solution will have useful effects?

– Does the proposal explain clearly what work will be done?

– Is there evidence that the researcher knows about the work that others have done on the problem?

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8) Shortcomings of research proposals

- It is not clear **what** question is being addressed by the proposal
- It is not clear **how** question is being addressed by the proposal
- It is not clear **why** the question is worth addressing
- The project is just a routine application of known techniques
- The project should be done by industry, not a university
- A new idea is claimed but few details of the idea are given
- The proposer seems unaware of related research
- The proposed research has already been done
- The proposal seems to be attempting to do too much
- The proposal requires too many resources to implement
- The proposal is badly presented

Assignment 10 :
Draft of Research Proposal

Objective:
   To integrate the various sections into a draft research proposal (10 آماده کردن فرم شماره)

Approach:
   Combine information from earlier assignments , adding and updating where necessary, to form a complete draft of the research proposal

Submit the above as an e-mail attachment by Wednesday ……. 1394 to <mashaygan2005@yahoo.com>