

Project

Section CISC/CMPE452/COGS400 (CISC 874 see next section) (15 marks)

This is a multipart project assignment which has both individual and group submissions. You will be marked for both individual and group work. The different parts need to be submitted at different time during the course so that the work progresses at a good pace and you will be penalized for failing to meet the submission deadlines. Read the instructions carefully to avoid any confusion.

*** For a group of 5 think that 5 people are getting 5*M marks for each submission item. So, I expect very good quality of work. Divide the responsibility accordingly among the members.**

| Part | Activity | Submission | Mark |
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| (a) | <p>Post your project idea in the asgn4a forum. Check recent publications on neural networks and genetic algorithms, and demos and sample applications on the web. You don't need to understand the papers completely but should make sure that you can get the data used for machine learning. Your post must include the following: (1 mark for each point)</p> <ol style="list-style-type: none">1. What to do and why it is important. Describe existing work done on the topic and provide a list of references.2. Data to be used. You can use data from your other studies and course works. For ANN the more data you have the better the system will work.3. A very high level idea about the ANN or the optimization algorithm (simulated annealing/genetic algorithm) to be used based on your reading. <p>Each student enrolled in the course has to submit the above as a forum post and will be marked for his/her post based on completeness of the posting and the quality of the idea (you should not submit a random idea without thinking about the feasibility of implementing it as a group of 5 students). This is intended to be a brainstorming effort to come up with some good project ideas. You can take idea from others and explore that more but you MUST give credit to the person who posted that topic first by referring to the name of that student just like a reference. Otherwise it will be considered as copying. You will select a project to implement as a group</p> | Individual forum post – one complete post, can be viewed by all. | 3 |

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| | (for undergrads) or individually (as a grad) from these topics and multiple groups can work on the same topic using different approaches. | | |
| (b) | <p>Form groups of 5 people. As a group choose a project to implement using ideas from asgn4a forum posts. Select a group representative to submit group work. Submit a one or two-page project proposal for the group which should include the points listed for 1(a) and the following: (1.5 marks for compiling the project idea from 1a)</p> <ol style="list-style-type: none"> 4. List of the group members. Identify the group representative. (0.5) 5. Validation criteria – how would you know that your problem is solved accurately. This is a very important part of implementation. (1 mark) | Group proposal submission to group Proj1b dropbox. | 3 |
| (c) | <p>Submit initial results. Without program code and results you will get 0 in this part. (1 mark for each point)</p> <ol style="list-style-type: none"> 1. One page description of the solution approach justifying why you took this approach and what tool was used for analytics. Also submit a flow diagram to show the steps of data processing (cleansing+normalizing+encoding+processing etc) and the contribution of each team member. 2. Present the results and based on your validation criteria, show how well your system is doing. For work on classification you should include classification accuracy as shown by the MATLAB confusion matrix, precision and recall measures. 3. Submit the code with paragraph style and in-line comments about what each part of the code is doing. May be you can later extend this work for one of your project courses. | Group draft result submission to group Proj1c dropbox (document + code). | 3 |
| (d) | <p>Submit final completed project. You will be marked based on completeness, accuracy, and presentation. Submit:</p> <ol style="list-style-type: none"> 1. Completed project report by combining 1(b) and 1(c) and making necessary revisions to the content based on your work. List what versions of tools used on which environment for the development work. (2) <ol style="list-style-type: none"> I. Identify what improvements can be done. II. List possible applications of your system. 2. Program code with inline comments about what each code is doing. (2) | Group final submission to group Proj1d dropbox (document + code). | 6 |

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| | 3. Prepare and present a brief 10 min group presentation for the class. (2) | | |
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Section CISC 874 (20 marks)

This is a multipart project assignment which for CISC 874 students is an individual submission (or may be 2 people in a group depending on the enrolment). The different parts need to be submitted at different time during the course so that the work progresses at a good pace and you will be penalized for failing to meet the submission deadlines. For graduate students the emphasis will be on the survey of related work to define a starting point for future research. You have to submit an elaborate survey paper and the implementation code for the project work. Read the instructions carefully to avoid any confusion.

| Part | Activity | Submission | Mark |
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| (a) | Same as given in the table above for undergrads. | | 3 |
| (b) | <p>Submit a two to three-page project proposal which should include the points listed for 1(a) and the following: (1.5 marks for compiling the project idea from 1a)</p> <p>1. Elaborate 1a with the following (5 marks)</p> <ul style="list-style-type: none"> Describe each existing work based on reading research papers on the topic (5 to 10 depending on the topic and availability of relevant papers. Try to find papers from good publication venues such as IEEE, ACM conferences and journals.). Describe each work briefly, a summary of how the works differ (add a table of comparison of problem, approaches, results...), what are their shortcomings (think what a better solution should have which you can do). Potential other research problems based on the survey as your future work. List of the group members if a group project. Identify the group representative. <p>2. Validation criteria – how would you know that your problem is solved accurately. This is a very important part of implementation. (1 mark)</p> | Proposal submission to Proj1b dropbox. | 7 |
| (c) | Same as that in the above table. | Draft result submission to Proj1c dropbox | 4 |

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| | | (document + code). | |
| (d) | Same as that in the above table. The difference is that you will have to give a 20min presentation and a longer report including a good survey and comparison of existing work and conclusion identifying future work ideas. | Group final submission to Proj1d dropbox (document + code). | 6 |