Thank you again for agreeing to help with the marking of hw1.

I have shared a zip file with each of you on Microsoft Teams (OneDrive)
After un-zip'ing, you should see files of the form:
3456789.pdf
3456789.txt

The .pdf file is the report.

The .txt file is a concatenation of the code itself, along with the output from two runs of the code with each type of network.

There is a sample solution on Microsoft Teams.

There is a .csv file into which you should enter the marks, separated by commas. The top two lines are the question numbers and the maximum mark for each component, as follows:

P1.1[1] NetLin
P1.2[1] NetFull
P1.3[2] NetConv
P1.4[4] Accuracy, Parameters, Confusion Matrix
P2.1[1] Training, Images
P2.2[2] Weights, Equations, Table
P2.3[1] Accuracy, Images
P3.1[1] anb2n: Annotated Image
P3.2[1] anb2n: Finite State Machine diagram
P3.3[1] anb2n: Explanation
P3.4[1] anb2nc3n: Annotated Image
P3.5[4] anb2nc3n: Explanation, showing how LSTM is learning the task and also describing context and hidden unit activations.

P1.1[1] NetLin
1 mark if their code looks correct, produces sensible output and achieves accuracy >= 70% in one of the .txt runs;
0.5 a mark if it is wrong but reasonable attempt.

P1.2[1] NetFull
1 mark if their code looks correct, produces sensible output and achieves accracy >= 84% in one of the .txt runs;
0.5 a mark if it is wrong but reasonable attempt.

P1.3[2] NetConv
1 mark if their code looks correct, produces sensible output, achieves accuracy >= 93% in one of the .txt runs, and number of independent parameters is correct.
0.5, marks if it is wrong but reasonable attempt.

P1.4[4] Accuracy, Parameters, Confusion matrix
0.5 mark for a poor response,
1 marks for a fair response,
2 marks for a good response,
3 marks for a very good response, including summary of accuracy, number of independent paramaters, confusion matrix and some description of what is similar in the shape of the confused characters.

P2.1[1] Training, Images
1 mark if images look correct and points are correctly classified.
0.5 mark if it is close but not quite correct.
There are supposed to be 5 or 6 hidden nodes; if they only have 4 nodes, and it looks like it has been hand crafted, then no marks.

P2.2[2] Weights, Equations, Table
2 marks if Initial Accuracy is 100%; equations, images and table look correct.
0.5, 1 or 1.5 marks if generally good but some minor errors.
I changed the spec to ask for a diagram of the network; but, some students may not have seen this; so, if they just show the weights, this is ok.

P2.3[1] Accuracy, Images
1 mark if the Initial Accuracy is 100% for *either* step or sigmoid, the images look plausible, and the points are correctly classified.
0.5 mark if reasonable attempt but with some error.

P3.1[1] anb2n: Annotated Image
1 mark for full, correct diagram including clusters, arrows and labels.
0.5 mark if partially correct but with some errors.
The finite state machine should be deterministic and it should have at least 12 states. Check that ABB, AABBBB, AAABBBBBB, AAAABBBBBBBB are all handled correctly.

P3.2[1] anb2n: Finite State Machine
1 mark if finite state machine is accurate.
0.5 mark if reasonable attempt but some errors (for example, labeling states instead of arrows).
The Finite State Machine should be deterministic, and have at least 12 states. Again, check that ABB, AABBBB, AAABBBBBB, AAAABBBBBBBB are all handled correctly.
You can show some leniency in terms of how the initial state is handled.

P3.3[1] anb2n: Explanation
1 mark for a good explanation, including description of hidden unit dynamics, and how the last B and following A are correctly predicted.
0.5 mark for poor or incomplete explanation.

P3.4[1] anb2nc3n: Training, Images
1 mark if images look plausible.

P3.5[4] anb2nc3n: Annotation, Explanation
In order to get the full 3 marks, students are expected to:
(a) show image(s) in which the relevant clusters of points are clearly separated,
(b) provide correct annotation for a Finite State Machine within the image(s), and
(c) provide a good explanation, including description of hidden unit dynamics, and how the last B, all the C's and following A are correctly predicted.
If the response is generally good but lacking in some area(s), you should give 1.5, 2 or 2.5 marks depending on how much is lacking.
1 mark for a poor or incomplete response, or just repeating general comments about LSTM networks without specific reference to the task.
In order to make the clusters clearly separated, they must either:
(i) plot the context units (you can tell that the plot is of context units rather than hidden units because somewhere the activations will go outside the bounds of -1 to +1), or
(ii) plot the hidden units, but blow up some part(s) of the image to high enough resolution so that the clusters become

visually separated.

When you are finished, you can send the .csv file to class email (cs9444@cse.unsw.edu.au)
Please try to finish at the latest by 28 October, 2024.

Let me know if you have any questions or comments.

COMP9444 Teaching Team