

CPSC 571-671

Fall 2020

Homework (a list of potential homeworks)

Due: as specified in the course outline

A homework is to be completed in groups of one, two or three students based on expectations and number of tasks to be completed.

Choose one of the following homeworks and develop a fully working solution. Schedule a meeting with both instructor and TA together on Tuesday, Thursday, Saturday or Sunday to discuss details of the homework you and your group will select. **Every homework which involves a mobile app development may be taken separately by two different groups, one per mobile app platform.**

Note: We will post the schedule tomorrow for meeting slots. You may book same meeting to discuss project and homework.

Problem 1. Given a research area or a list of related keywords, find documents/papers from the Web (use last 5 years with at least three papers from each year) and produce their summaries. **(3 students)**

Problem 2. Given a list of papers in csv or excel file with list of authors, titles and the abstract of the papers as three columns. Distributed the papers into a number of categories and find relevant keywords in each category. **(2 students)**

Problem 3. Given a specific topic as input, extract related posted from the social media for a specific period of time. Find influential posters, relevant keywords, etc. **(2 students)**

Problem 4. The same as problem 3 but using clustering instead of network, then the most influential becomes the closest to the centroid in each cluster, rank the instances of each cluster (tweeters/keywords) based on their distance from the centroid **(2 students)**

Problem 5. The same as problem 3 but using frequent pattern mining instead of network, then the most influential becomes the one with the support value and which exists in more frequent patterns, rank the instances (tweeters/keywords) based on the combination of their support and the number of frequent pattern in which they co-exist. **(2 students)**

Problem 6. Given a table of touristic locations and the services/cost associated with each location, not necessarily all sites provide all services with the same quality and cos. Develop a system which will a tourist wants to check and find most appropriate locations to visit. **(3 students)**

Problem 7. Develop a mobile app which will track the location of the mobile as its owner changes position. In case of rapid change in the position, like inside a moving car then disable the network connection or sound/speakers. When the mobile phone's location will not change, it is like at one place, its network connection speakers/sound will be enabled. **(1 students)**

Problem 8. Develop a mobile app which will be focused to monitor the face of a person captured by the phone's camera. In case, the person face status changes from relaxed to tired then issues a warning that you need to take some rest. **(2 students)**

Problem 9. Develop a mobile app that could watch the road status in front of a car, issues a warning if another car or any obstacle getting close with the risk of accident, like a wall, barrier, hole in the ground, etc. **(2 students)**

Problem 10. Develop a mobile app which allows you to get permission from other people to have them on your watchlist and allows you to locate from your watchlist people in your vicinity as well as allows you to find the location of a person on your watchlist. **(1 students)**

Problem 11. Develop a mobile app and a corresponding website which allows a group of people to subscribe to a group, post their shopping needs in terms of items and quantities and possibly with their preferred deadline for delivery which may be unspecified if the item is not urgent. A person from the group may mark item as he/she is interested in getting them for group members with a time and day he/she plans to go shopping. Once items are ready for pickup, the app should notify every person about his/her items with associated total cost which should be captured by scanning the receipt and getting/extracting corresponding prices accordingly. **(3 students)**

Problem 12. Develop a mobile app which captures the movements of its owner and record them in a database, allows the owner to recall its daily or weekly activities, or even activities during a period of time, displays locations visited, like market, coffee shop, hospital, etc. and allows owner to pick one or more to see its related activities only. It should synchronize with a corresponding website, allow the user to scan receipts related to any activity, allow the user to produce a summarized/ detailed list of spending at various locations. **(3 students)**

Problem 13. Develop a mobile app and web-based interface which guides students to select the most appropriate course to take in a semester by considering his/her level, his/her peers and their courses especially those who have similar performance, both current and from previous year, like students who took this course took this course and passed/failed. **(2 students)**

Problem 14. Develop web-based application which will rank school based on performance of students at the university. **(1 students)**

Problem 15 Develop a web-based system which will rank universities based on performance on graduate students and employees who graduated from those universities. **(1 students)**

Problem 16. Develop a website which allows for hosting a conference or a journal with all associated administrative requirements. **(3 students)**

Problem 17. A computer or Laptop built-in or external camera captures the face of the person using the computer. It is required to capture face status and issue alert if not in good mood, tired, etc. Multiple users may use same machine, treat them differently. **(3 students)**

Submission:

Submit your assignment to the drop box on D2L.

Late Submission Policy:

- -2d% (d is number of days) for each late day or portion of a day. If late by say 5 days, then your mark will be decremented by $2+2 \times 2+2 \times 3+2 \times 4+2 \times 5=30$ points.
- Hence no submissions are accepted 10 days after the deadline.

Collaboration Policy:

- Assignment is to be done individually.
- Sharing of solutions is prohibited.
- Sharing includes looking at others' solution on paper and on the computer screen.
- Discussions with others can only be carried out at the concept level.
- Your submission must be your own original work. If unsure, always check with your instructor or TA.

Academic Misconduct:

- Violation of the collaboration policy may be considered academic misconduct.
- Any similarities between assignment submissions will be further investigated for potential academic misconduct.

D2L Marks:

Any marks posted on D2L or made available using any other mean are tentative and are subject to change (after posting). They can go UP or DOWN due to necessary corrections.

