
Coursework reports 2014–2015

C03352 Operations research and combinatorial optimisation

Coursework assignment 1

General remarks

The coursework assignments should not be attempted unless you have completed the exercises at the end of each chapter in the textbook and/or subject guide.

Most students did very well in both coursework assignments. Some of them were outstanding. The learning experiences were mainly positive, although some students did not attempt all of the questions, which can result in a fail.

Comments on specific questions

There were three questions in this coursework assignment. You should answer them individually.

Question 1

An easy way to answer this part of the question would be by contradiction. Most students did well on this question.

Question 2

- a. The answer to this part of the question is straightforward. A good answer would include a correct graph.
- b. A good answer to this part of the question would be the superset containing all the independent sets.

Question 3

- a. A good answer to this part of the question would consist of a discussion of (though not necessarily in the same order):
 - i. the concepts of the greedy algorithm, optimisation problems, cycle matroids (clear descriptions are required)
 - ii. demonstrations with an example and discussion.
- b. A good answer to this part of the question would include at least the following sections:
 - i. flowchart or class diagram
 - ii. screenshot
 - iii. discussion
 - iv. implementation that shows a good understanding and design.

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Coursework assignment 2

General remarks

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Comments on specific questions

Again, there were three questions in this coursework assignment and you should answer them individually. It is important for you to include all the working steps as well as a good demonstration of the results.

Question 1

A good answer to this part of the question would include a clear problem statement, and, in particular, an indication of the entities to be maximised and minimised.

Question 2

A comprehensive demonstration of how the problem may be solved by the partition-matroid approach is required and a good understanding of the partition-matroid approach is necessary to solve the problem.

Question 3

This question requires three implementation tasks and you should complete them individually. You would need to demonstrate not only the programming codes, but also the documents about the design, such as the algorithm, the UML diagram/class diagram, best five screenshots to show the program execution results, and finally a discussion.

A good coursework assignment would include essentially a running program that can produce the required results, depending on the input data, as required in parts (a) and (b). Screenshots should also be included to present specific results as required in parts (a) and (b).