

CCP6214 Algorithm Design and Analysis
Trimester October/November 2024 (Term 2430)

ASSIGNMENT

A. GENERAL INFORMATION

- Assignment mark: **40%**
- Assignment deadline: **10 Feb 2025 (Sun)**
- Presentation date: **12-14 Feb 2025**
- Presentation duration: **30 minutes per group**
- Group: Three **(3) members per group**
- Expected deliverables: **Program source code and report.**

B. TASK

Every group must perform the following the tasks for this assignment:

1. From the Wikipedia page for [List of NP-complete problems](#), choose a problem (excluding Knapsack problems) as your group's assignment topic. Understand the problem and why it is NP-complete.
2. Find more than one algorithm to solve the problem, analyze its theoretical time and space complexities.
3. Design experiments to capture the running times of the algorithms. Ensure the experiments are fairly conducted.
4. Present and conclude the findings.

C. REGISTRATION OF GROUP AND TOPIC

Register your group and topic at the link below.

[CCP6214 Assignment Grouping.xlsx](#)

D. REPORT

Your report should contain the following items:

1. Group member IDs, names, and contributions.
2. All items in the task list.
3. References in APA format

E. PRESENTATION AND Q&A

1. All members must be present to explain his/her part.
2. Zero mark for the whole assignment for the absentees.
3. Present all items in the task list (report) in a condensed but understandable manner.
4. Demo your program.
5. Answer the questions presented to you.

F. SUBMISSION FORMAT

Each group makes one submission to the Team Assignment. The submission shall include the following 2 files:

1. **GroupXCode.zip** where X is your group number. Put all your code into this zip. Ensure your code works.
2. **GroupXReport.pdf.**

G. ASSESSMENT CRITERIA

No	Component	0 – No attempt	1 – Very poor	2 – Poor	3 – Moderate	4 – Good	5 – Excellent Demonstrate deep understanding
1.	Problem and NP-complete	No explanation	Wrong explanation on problem	Correct explanation on problem, missing NP, NP-hard, NP-complete or has major error	Moderate explanation on problem, NP, NP-hard and NP-complete, has minor error	Good explanation on problem, NP, NP-hard and NP-complete	Excellent explanation in problem, NP, NP-hard and NP-complete
2.	Algorithm 1 implementation and complexity analysis	No implementation	Wrong implementation	Correct implementation; major error in complexity analysis.	Correct implementation; minor error in output or complexity analysis	Correct implementation, output, and complexity analysis.	Excellent implementation, output, and comprehensive complexity analysis.
3.	Algorithm 2 implementation and complexity analysis	No implementation	Wrong implementation	Correct implementation; major error in complexity analysis.	Correct implementation; minor error in output or complexity analysis	Correct implementation, output, and complexity analysis.	Excellent implementation, output, and comprehensive complexity analysis
4.	Experiment design	No implementation	One set of input or case; unfair design	Limited sets of input or cases; unfair design	Limited sets of input and cases; fair design	Good sets of input and cases; fair design	Comprehensive sets of input and cases; fair design
5.	Findings and conclusion	No findings or analysis	Limited analysis without charts	Limited analysis with charts	Moderate analysis with charts, minor error	Good analysis with charts	Comprehensive analysis with charts
6.	Presentation and Q&A	Reading from report, comment, or note; cannot answer questions.	Mostly reading from report, comment, or note; cannot answer questions.	Poor in presentation; cannot answer questions.	Moderate in both presentation and Q&A	Good in both presentation and Q&A	Excellent in both presentation and Q&A
7.	Report completeness and quality	No report	Missing most contents	Include most contents, no reference	Include most contents with reference or poor structure/formatting	Complete contents with reference and good structure/formatting	Complete contents with reference and excellent structure/formatting

H. MARKSHEET

No	Component	Weight	Mark
1.	Problem and NP-complete	5	
2.	Algorithm 1 implementation and complexity analysis	5	
3.	Algorithm 2 implementation and complexity analysis	5	
4.	Experiment design	5	
5.	Findings and conclusion	5	
6.	Presentation and Q&A	5	
7.	Report completeness and quality	5	
8.	Peer evaluation	5	
	Total	40	