# 420-731-AB: Summer 2023 Exam

# Related Technologies for Multiplatform Applications

This is a take-home exam due by midnight on June 24. It is worth 30% of your grade for the course. You must submit the completed exam in Lea prior to midnight on June 24. You will only be allowed to submit once and no lates are permitted.

Please answer all questions using your own words. I am looking for your thoughts and reflections on your learning as well as the details of the specific technical content. Please do not leave any blank responses. If you do not understand a question, you may request clarification via Teams. I do not promise a response, but will clarify if possible in a timely manner if possible and appropriate. If you are still confused by a question, please indicate in words your interpretation of the question and then answer that. This may receive partial to full marks, as appropriate depending on the nature of the interpretation and the quality of the resulting response.

This is not a closed-book exam. You are allowed to consult online resources, but not discuss with other students in class nor with other people. Please respect this and do not copy or plagiarise. Use of ChatGPT or other AI tools is not permitted. I am seeking your own words, not the words of others. So, do not cut-and-paste from the internet!

"Your submitted work must be clear, complete, and YOUR OWN. You must be prepared to explain any of your work to me in person. Failure to be able to defend your work, or do a similar question in front of me in person can/will void any grade you get on this test.

CHEATING / PLAGIARISM WILL RECEIVE AN AUTOMATIC 0% AND YOU WILL BE REPORTED TO THE COLLEGE.

If you wish to provide a response to a question in your native language in addition to an English response, you may do so. This is not instead of, but in addition to. If something is unclear in your English response, I will use online translation tools to get a sense of what you might not have been able to convey appropriately in English and adjust the mark if appropriate.

Questions are worth a total of 30 points. 4 questions are worth 6 points each and two are worth 3 points each. Rough size guidelines are provided. But, quality is what is being marked, not quantity. Please make sure to give a response that is thoughtful and well considered, and that uses proper sentences. Short bullet-like notes with few details will likely receive low marks.

Student Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student ID \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Attestation: I affirm that the responses provided use my own words and reflect the lessons I have learned in this course. Indicate “I, your name, affirm”: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Question 1: In your own words, describe 3 main things that Compose Multiplatform and Flutter have in common with their approach to declarative UI. The focus here is on how they work at a higher level rather than specific syntax. You may also draw links to React if you wish. [6 points, ~1/2 page/ three paragraphs]

Question 2: In your own words, describe the differences between how Kotlin Multiplatform and Flutter/Dart handle asynchronous operations. This response should indicate both differences in conceptual approach and in syntax. [6 points, ~1/2 page, two paragraphs]

Question 3: In your own words, describe how the Provider pattern works together with a component-based UI. Give a simple coding example in either Kotlin or Flutter showing how a Provider is added to the component tree and then used by a component. [6 points, ~1/3 page or 1 paragraph text plus examples]

Question 4: In your own words, describe the Model-View-ViewModel pattern. Discuss why the pattern is important. [3 points. ~ 1/3 page, 2 paragraphs]

Question 5: In your own words, discuss at least 3 lessons you learned about configuration in this course. Describe these lessons in terms of issues encountered and approaches learned to how to address those issues. Don’t just indicate a simple frustration. [3 points, ~ 1/3 page, 3 paragraphs]

­Question 6: In your own words, discuss 3 key syntactic similarities and 3 key syntactic differences between Kotlin/Compose and Flutter. Focus on those parts of the languages that are not from Java per se. For each similarity/difference, describe it using a couple sentences and also provide small code snippets from **both** languages (e.g., most may only be a single line, some may be longer as needed) that specifically highlight the difference/similarity. [6 points, ~ 1 page including text and examples laid out so they are readable]