STEVENS
INSTITUTE OF TECHNOLOGY

Default Question Block

Informed Consent

You are being invited to participate in a study to assess learning at Stevens and how it changes over time. This study is part of the PerfStudio project funded by the National Science Foundation and conducted by Drs. Lu Xiao, Eman AlOmar, Andre Bondi, and Yu Tao.

A central goal of the PerfStudio project is to understand student perceptions of the teaching practices that lead to improved learning. You are invited to participate in this important study because you are enrolled in one of the software engineering, computer science or systems engineering courses that are part of the study. You will be asked to complete surveys and finish assignments during the semester when you take the class(es). This questionnaire will take approximately 8 minutes.

There are no anticipated risks for individuals participating in this study. You may benefit from specific changes in instructional practices or support provided by Stevens in response to the findings resulting from the survey.

Your participation is voluntary, and you may withdraw from participating in this study at any time and for any reason. You may also refuse to answer any question. If you decide not to participate or if you withdraw, there is no impact on your standing at Stevens.

Your responses are confidential. All information will be treated as strictly confidential. All data will be reported in the aggregate only and no one will be able to identify your survey or your responses. Any reports or publications based on data collected for this project will include only group averages. Therefore, it will not be possible to identify any single individual in the report.

If you have any questions about the study or the procedures, please contact Dr. Lu Xiao at lxiao6@stevens.edu or by calling 201-216-3676. If you have any questions about your rights as a research subject, or you have concerns or suggestions or you

want to talk to someone other than the researchers, you may contact the Stevens Institutional Review Board (IRB) by phone: (201-216-8762) or by email: irb@stevens.edu

I agree to participate:

○ Yes
○ No

Demographics

What is your major?

○ Software Engineering
○ Computer Science
○ Computer Engineering
○ Cybersecurity
○ [_____] Others, please specify

What year are you in at Stevens?

○ First year
○ Sophomore
○ Junior
○ Senior

○ 5th year

○ Graduate student

○ [   ] Others, please specify

Which of the following classes are you **CURRENTLY** taking? Check all that apply.

☐ SSW 315/325 Object-Oriented Software Engineering

☐ SSW 345 Modeling and Simulation

☐ SSW 533 Cost Estimation & Metrics

☐ SSW 567 Software Testing, Quality Assurance, and Maintenance Software Testing

☐ [   ] Others, please specify

Which of the following classes did you take **LAST SEMESTER**? Check all that apply.

☐ SSW 315/325 Object-Oriented Software Engineering

☐ SSW 345 Modeling and Simulation

☐ SSW 533 Cost Estimation & Metrics

☐ SSW 567 Software Testing, Quality Assurance, and Maintenance Software Testing

☐ [   ] Others, please specify
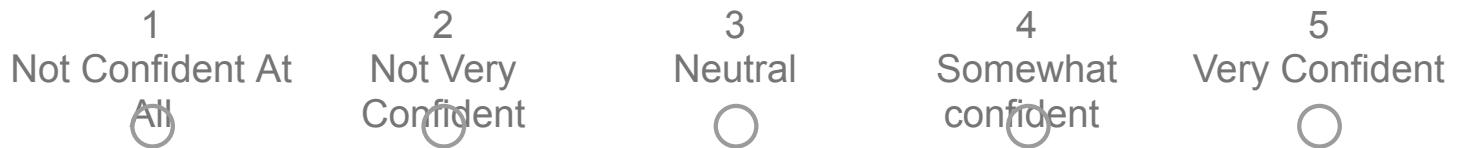
How many years of programming experience do you have?

○ 0-1 years
○ 1-2 years
○ 3-4 years
○ 5+ years

When/how did you start learning programming?

○ Elementary school
○ Middle school
○ High school
○ College
○ Summer programs
○ Others, please specify

General Performance Concepts

On a scale of 1 to 5, how confident are you in your ability to choose the most efficient I/O method for a given task?

1	2	3	4	5
Not Confident At All	Not Very Confident	Neutral	Somewhat confident	Very Confident
○	○	○	○	○

Did you observe significant differences in performance between
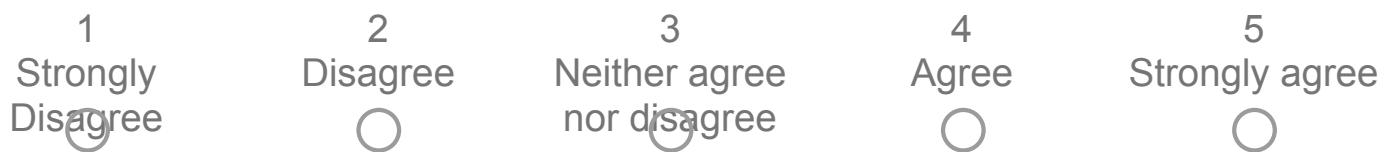
different I/O approaches?

○ Yes
○ Maybe
○ No

What performance metric(s) did you use to measure the performance with each I/O approach? Please check those and **only those** that apply.

☐ Elapsed execution time
☐ Number of I/O operations performed
☐ Amount of CPU time
☐ Number of garbage collections
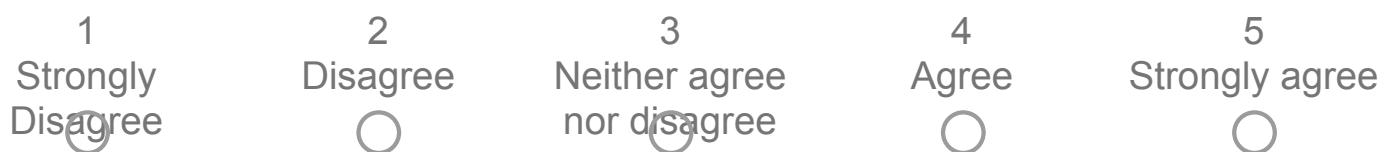☐ Peak amount of memory used

Which factor do you think impacts Java I/O performance the most?

How will understanding Java I/O performance influence your programming decisions in future projects/assignments?

How much do you agree with this statement:

I can describe the trade-offs between performance and design clarity in object-oriented systems

1 Strongly Disagree	2 Disagree	3 Neither agree nor disagree	4 Agree	5 Strongly agree
◯	◯	◯	◯	◯

How much do you agree with this statement:

I feel more confident in applying performance concepts after completing this course module.

1 Strongly Disagree	2 Disagree	3 Neither agree nor disagree	4 Agree	5 Strongly agree
◯	◯	◯	◯	◯

General Course Objectives

How easy or difficult was it to implement the solution using an inheritance-based approach?

1 Very difficult	2 Difficult	3 Neutral	4 Easy	5 Very easy
◯	◯	◯	◯	◯

How easy or difficult was it to implement the solution using both composition-based approaches?

1	2	3	4	5
Very difficult	Difficult	Neutral	Easy	Very easy
○	○	○	○	○

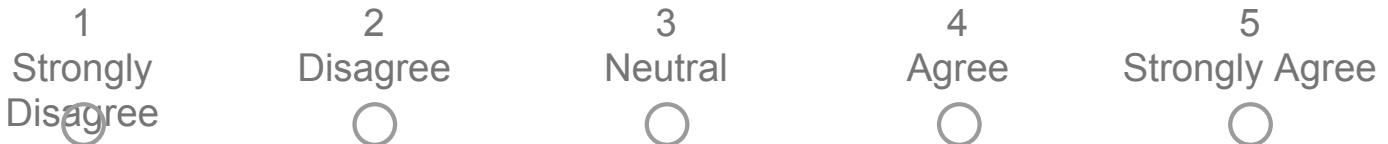## Given your experience, would you recommend inheritance or composition for performance-critical applications? Why?
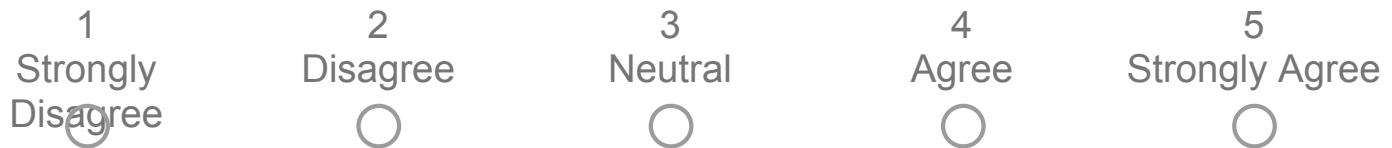
○ [   ] Yes

○ [   ] No

How much do you agree with this statement:
I can justify my design decisions using object-oriented principles.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

How much do you agree with this statement:

Working with both inheritance and composition helped me deepen my understanding of object-oriented design.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
◉	○	○	○	○

Integrated Performance-in-Context Objectives

Which Java I/O classes did you use for processing the patient vaccination data? Check all that apply.

☐ FileReader/BufferedReader
☐ FileInputStream/ObjectInputStream
☐ [   ] Others (please specify)

Which data structure(s) did you use to store vaccination data in memory? Select *all that apply.*

☐ List
☐ Map
☐ Tree
☐ Queue
☐ Stack
☐ Set
☐ Custom structure

To what extent do you believe your design choice (inheritance vs. composition) affected your program's performance?

1	2	3	4
Not at all	Slightly	Moderately	Extremely

What challenges do you face when working with file I/O performance optimizations?

What would you change in your design to improve performance further?

In team discussions, performance considerations influenced our architectural or implementation decisions.

2	3	4	5
Disagree	Neutral	Agree	Strongly Agree

Strongly
Disagree   ◯   ◯   ◯   ◯

Describe one specific way your team adapted its design or code to improve performance based on what you learned in this course.

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