

*CSE 545*

# *Software Security*

## *Course Project Guidelines*

*Professor Stephen S. Yau*

*Spring, 2022*



# *Project Group Organization*

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- Each group should have 8 - 9 students and the total number of groups is 15.
- Each group will have a group leader and a deputy leader appointed by the professor.
- Each group leader and deputy group leader will receive *up to 10 points and 7 points additional credits* respectively of the group's course project score.



## *Project Group Organization (cont.)*

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- Each group leader is responsible for organizing, coordinating and delivering all deliverables of the project on time with input of all group members.



## *Project Group Organization (cont.)*

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- Deputy group leader should work with the group leader to ensure that all the tasks are completed well in advance to meet all submission deadlines.



## *Project Group Organization (cont.)*

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- A group leader or deputy leader may *lose up to 5 points* of the course project score in case grossly neglecting his/her responsibilities.



# *Course Project*

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*The deadline to submit project software source code, project URL, user guide and the project report is 9<sup>th</sup> April 5:00pm.*

*The project report, source code and project URL will be shared with all students on 9<sup>th</sup> April 11:00pm*



## *Course Project*

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- The project will be evaluated on the following aspects:
  - Quality of developed software system & security
  - Project documents
  - Project presentation and discussions.
  - Conduct of the project.



## *Course Project*

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- Each student is required to test the software developed by two other groups for finding vulnerabilities.
- The group project presentation should include responses to all the vulnerabilities discovered by other group students.





## *Course Project*

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- Incentive for a student submitting the vulnerability report for each assigned group project software for testing.
  - A student can submit as many vulnerabilities as possible for each assigned group project software
  - Each submitted vulnerability will be classified as valid or invalid by the group.



# *Course Project*

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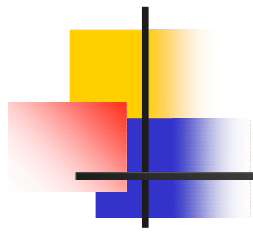
- For each valid vulnerability, the student will get 1 point out in the final project score and 0.5 point for each functional vulnerability not leading to security problem and will lose 0.5 if the vulnerability is invalid.
  - The total net credits a student can receive due to the number of reported valid vulnerabilities will not exceed 20 points.
  - There is no limit on points lost for invalid vulnerabilities.



## *Course Project*

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- Student not submitting their testing report will lose 10 points of their project score.
- If a student submit a vulnerability report with less than one-half of the number of valid vulnerabilities discovered in the assigned project, the student will lose 5 points.
- Individual student's project score will be adjusted based on *peer evaluation and other inputs*.



*CSE 545*

# *Software Security*

## *Course Project Guidelines (Part 2)*

*Professor Stephen S. Yau*

*Spring, 2022*



## *Course Project (cont.)*

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- Each group leader and deputy group leader will receive **up to 10 points and 7 points additional credits** respectively of the group's course project score. A group leader or deputy leader may lose up to 5 points of the course project score in case grossly neglecting his/her responsibilities.



# *Group Project Weekly Report*

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A. Due: *05:00 pm every Tuesday  
starting January 25, 2022*

B. Weekly Report Format

a) 3 to 5 pages

b) Font size and line spacing: 11 point  
and 1.5 lines spacing

C. Weekly Report Content



## ***Group Project Weekly Report (Cont.)***

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- 1) Title - Group number: Project Title**
- 2) Person prepared this report (the deputy leader)**
- 3) Person approved this report (the group leader)**
- 4) Person submitted this report**
- 5) List of team members**



## *Group Project Weekly Report (Cont.)*

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### **6) Tasks Summary: [Table]**

Task Number, Task Name, Member that conducted / is conducting the task (In case of multiple members, identify the member who led / is leading the task), Task Status (whether Completed, Ongoing, or Not Started)





## *Group Project Weekly Report (Cont.)*

### **7. Task progress**

For each completed task, Add the following information for the review:

- (i) The date and time completed the review
- (ii) How the review was done: By group meeting, or by individual member(s) [specify the names of the members conducting the review]
- (iii) Review conclusion: Satisfactory,  
incomplete, questionable, grossly wrong
- (iv) Recommended action: Accept, more thorough work

### **8. Gantt chart**

### **9. Issues**



## *Group Project Weekly Report (Cont.)*

**10.** Points will be deducted for each weekly report if the report is not in proper format or missing information in the report.



# Testing

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- Each student will be assigned *two group projects* for testing on April 9, 2022.
- Students must submit their vulnerability reports before 5:00pm, April 15, 2022.
- The reports will be posted to the respective teams by 7:00pm on April 15, 2022.



# *Student's Vulnerability Report*

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A student's vulnerability report must include following information:

- 📖 Give sequence number to each vulnerability (starting from 1)
- 📖 How did you find the vulnerability? Show the sequence of steps to detect the vulnerability and the relevant screenshots.
- 📖 Including a brief explanation of expected attack(s) you performed by exploiting this vulnerability



# *Group Presentation Guidelines*

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- The group presentation (including discussion) will be in-person and must be completed in no more than 20 minutes.
- The group presentation and discussion:
  - Part A (3 minutes): Group Presentation
  - Part B (17 minutes): Vulnerability Discussion



## *Group Presentation Guidelines (cont.)*

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- Part A – Project Presentation including the following:
  - What are the security requirements in your course project? (in bullet points)
  - How did your course project satisfy the security requirements ?



## *Group Presentation Guidelines (cont.)*

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- Part B – Vulnerability Discussion:
  - First, merge the same or closely similar vulnerabilities to a merged vulnerability, and then classify all the vulnerabilities (including merged vulnerabilities) in two classes valid or invalid.
  - For each vulnerability in valid class, the group must present preventive and corrective measures (no more than 2 lines in slide format)



## *Group Presentation Guidelines (cont.)*

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- For each vulnerability in valid class, the group must present preventive and corrective measures (no more than 2 lines in slide format)
- A student, who submitted vulnerabilities which are classified in the invalid class, may submit up to 2 lines for each of such vulnerabilities in slide format to counter the justification of such classification by the group.





## *Group Presentation Guidelines (cont.)*

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- The group will have 30 seconds to present their argument for the counter argument of the student.
- Any discussion after those arguments based on prepared slides, can not exceed 1 minute.



## *Bonus and Penalty for a group*

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- For each vulnerability or merged vulnerability classified in valid class, the group will lose 1 point from final project score. (Up to 30 out of 100 points)
- If the group provides corrective and preventive measures for each vulnerability or merged vulnerability in the valid class in final report, then the group will receive 0.5 point.



## *Group Project Submission*

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- Every group must upload its group presentation slides on the Canvas 1 day before the presentation day. (refer presentation schedule posted in class schedule)



# *Course Project Final Group Report*

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- The final group project report consists of the following items:
  - General information, including group membership and assigned responsibilities/ tasks.
  - A vulnerability report (with reported vulnerabilities, corrective and preventive measure).
  - Final design document



## *Course Project Final Group Report (cont.)*

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- The vulnerability report must include the following
  - Solution (preventive/corrective) to take care of each valid vulnerability reported by other students.
  - Justifications that any vulnerability your group determines as invalid.
- For each student group, the individual report and written final group report must be submitted ***within one week of the group's vulnerability discussion presentation.***



## *Individual Student Project Report*

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- *Each student* must submit an *individual* project final report of no more than 4 pages (two column, font size 11, single space), including figures.
- The report must include the following:
  - An *overview* of the project, including relevant references in specified format (*in each student's own words*, but the content must be consistent with the group report)



## *Individual Student Project Report (cont.)*

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- *Contributions* made and lessons learned in the project by the student.
- The report will be evaluated, and a satisfactory report is *required for passing the course*.

Student must submit individual report within 4 days of the group's vulnerability discussion presentation.



## *MS CS (Non-Thesis) & MCS Portfolio*

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- If a student wants to include the project in his/her MS CS (Non-Thesis) or MCS portfolio, it is required to submit his/her portfolio report for this course along with their individual student project report with the same deadline as individual student project report.