

SCS252: Software Modeling – Winter 2020

Final Project

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Final Project setup:

1. There are two project topics within this document. Students should form teams and solve **ONLY one topic**.
2. This project is to be solved by teams of 3 to maximum 4 students.
3. Students will submit one combined solution and must contribute equally to the solution.
4. Only submit original work. Any copied work will be severely penalized.
5. مسؤولية الفريق تضامنية و أى غش من أى فرد سيكون مسؤولية الجميع و سيتم توقيع العقوبة عليهم وفق اللوائح
6. Please read the rest of this document very carefully.

Submission guidelines for BOTH topics:

- 1- Your submission should be one pdf document including your solution for parts 1 and 2 above. The file should be named
FCI_CU_SCS252_Special_Level2_Topic1_StudentIDs.pdf or
FCI_CU_SCS252_Special_Level2_Topic2_StudentIDs.pdf
- 2- Your document must have a cover page with your team names in Arabic, your student IDs, and the course name.
- 3- Submission link will be as announced through the Faculty of Computers and Information or through Cairo University.
- 4- Deadline will be as announced by the Faculty of Computers and Information or through Cairo University.

Policy Regarding Academic Honesty:

١. يلتزم الطالب بالأمانة العلمية فى جميع ما يقدمه من أعمال و حلول و فى كل ما يذكره من معلومات لأساتذته و معيديه كتابية و شفاهة ، و يقر الطالب أو المجموعة بأن كل ما يقدمه من حلول هو أصلى من تأليفه و تنفيذه هو.
٢. لا تتهاون الكلية مع أى إخلال بالأمانة العلمية و أى صورة من صور الغش و سيعاقب مرتكبها وفق اللوائح المعمول بها.
٣. تشجع الكلية على مناقشة الأفكار و تبادل المعلومات و مناقشات الطلاب حيث يعتبر هذا جوهرى لعملية تعليمية سليمة.
٤. مساعدة زملاءك على قدر ما تستطيع على التغلب على أية عقبات و فهم مفاهيم المقرر أمر هام و مشكور و لكن تبادل الحلول غير مقبول و يعتبر غشا و إخلالا بالأمانة العلمية.
٥. أى حل يتشابه مع أى حل آخر بدرجة تقطع بأنهما منقولان من بعضهما أو من نفس المصدر سيعتبر أن صاحبيهما قد قاما بالغش ، إلا فى حالة ثبوت الحصول على الحل بأسلوب غير شرعى دون علم صاحبه.
٦. قد توجد على النت مصادر مشابهة للحل المطلوب و لكن أى نسخ من على النت أو من أى مصدر آخر يعتبر غشا يحاسب عليه صاحبه.
٧. إذا لم تكن متأكدا أن فعلا ما يعتبر غشا فلتسأل المعيد أو أستاذ المادة.
٨. فى حالة ثبوت الغش سيحال الطالب لمجلس تأديب و يعاقب وفق لوائح الجامعة و قد يرسب فى المادة ، و قد يحال الطالب للنيابة العامة فى حالة وقوع جرائم جنائية كالتروير و انتحال الشخصية.

Topic 1: Analyze and Design Booking.com System

Consider the real system **www.Booking.com** that allows several kinds of bookings to its users. You are required to do the following tasks:

1. Write down a list of 10 requirements, using English text, describing the main functionalities of that system. Each requirement should span two lines of text at least. Your requirements list should be thorough (i.e., covering a wide variety of the selected system's features).
2. Prepare a use case diagram for the listed requirements. Your use case diagram should include **at least** 10 use cases, while utilizing the different notations of use case diagrams as explained during the course's lectures.
3. From your use case diagram, select **four long use cases**, and write down complete use case descriptions for them (including exceptional cases) as explained during the course's lectures.
4. Create an **analysis-level** class diagram for the selected system, and sequence diagrams for **the four use cases** that you wrote use case descriptions for. Your class diagram and sequence diagram should make use of the different notations as explained during the course's lectures.
5. Create an updated class diagram that involves using **at least** two design patterns. For each of the used design patterns, you need to explain why you picked that pattern specifically.
6. Evaluate your updated class diagram [from point 5 above] against all of the SOLID principles as applicable.

Submit all of the tasks deliverables within one consolidated pdf file.

Topic 2: Analyze and Design Youtube.com System

Consider the real system **www.youtube.com** that allows several kinds of features to its users. You are required to do the following tasks:

7. Write down a list of 10 requirements, using English text, describing the main functionalities of that system. Each requirement should span two lines of text at least. Your requirements list should be thorough (i.e., covering a wide variety of the selected system's features).
8. Prepare a use case diagram for the listed requirements. Your use case diagram should include **at least** 10 use cases, while utilizing the different notations of use case diagrams as explained during the course's lectures.
9. From your use case diagram, select **four long use cases**, and write down complete use case descriptions for them (including exceptional cases) as explained during the course's lectures.
10. Create an **analysis-level** class diagram for the selected system, and sequence diagrams for **the four use cases** that you wrote use case descriptions for. Your class diagram and sequence diagram should make use of the different notations as explained during the course's lectures.
11. Create an updated class diagram that involves using **at least** two design patterns. For each of the used design patterns, you need to explain why you picked that pattern specifically.
12. Evaluate your updated class diagram [from point 5 above] against all of the SOLID principles as applicable.

Submit all of the tasks deliverables within one consolidated pdf file.