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Announcements

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sample midterm

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Posted to: Fall 2017 - Design Patterns (CS-542-01)

1. Your teammate wants to design a method signature using parameterized types. What advice will you give your teammate about this design? [3lines]
2. What are the differences between the Factory Method and Simple Factory patterns, in terms of design features and the class of problems? [3lines]
3. Your team mate argues that the Abstract Base class design of the Factory Method pattern is not useful in cases when only one specialized subclass is currently using it. Will you agree or disagree? [5 lines]
4. Hotels typically have a wake-up calling service. Each customer can call the front-desk and specify the time at which they would like to receive a wake-up call. The front-desk however allows wake-up calls only at every hour (5.00 AM, 6.00 AM, etc.) Sketch the design for an automated wake-up service.
5. A ceiling fan operates in three modes: low speed, medium speed, and high speed. Sketch the design for a program to control the operation of this fan.
6. As an expert in Design patterns, you are hired by a company to design software to plan activities for alumni during homecoming weekend. Each alum during the homecoming weekend should be given an activities-list that includes a Bearcats soccer game, appointment to meet a newly hired Professor, eat in a dining hall, visit the nature preserve, and reservations for dinner at a local restaurant. These activities can be completed in any order, and there are choices for each of these activities. Each alum has to choose which dining hall, which professor to meet, etc. Sketch the design pattern(s) to implement this software.
7. Sketch the design of software so that whenever a library book is on reserve is returned, all the students on the waitlist get a text message, the instructors of the corresponding course get an email message, and the my.binghamton.edu portal's database is updated about the status of the book.
8. As a Design patterns expert, you are hired by a company to design software to build a Halloween themed maze that has a configurable number of dark rooms, spooky rooms, haunted rooms, walls with hidden doors, and a couple of other (scary) surprise features. Sketch the design pattern(s) to implement this maze software.
9. The latest gadget, dChromeCast, is available in limited supply with designG company. The company has a liberal return policy so assume that many customers will return it after using it for a few days. Design a module so that the company can keep track of its supply. Customers who request after the supply has run out, should be placed on a waitlist, and informed if the gadget becomes available (because somebody returned it).

