**COEN 359 Design patterns Summer2015**

**Assign2 (100 pts)** **Due: 17th July (10 am)**

**In this assignment, you will re-implement the problem given below (same as what you implemented in assign1), using Creational Design patterns. You are free to use one or more of the Creational patterns as applicable.**

---------------------------------------------------------------------------------------------------------------------------------------

*PartyOrders* is a small company that specializes in organizing parties and celebrations for small to medium sized gatherings. A **party setting** consists of several table settings. Each **table setting** consists of

* A table with 1 center-piece, 4 seats (chairs) and 4 place-settings.
* Each place-setting consists of plates, silver and napkins.

Currently, seats, place settings and center-pieces come in three styles: **vintage**, **contemporary** and **modern**.

**Pricing is determined as follows:**

Base Price for a chair: $50

Base Price for a place-setting: $20

Base Price for a center-piece: $30

Price for a Vintage chair: base price of chair + $50

Price for a Vintage place-setting: base price of a place-setting + $40

Price for a Vintage center-piece: base price of a center-piece + $35

Price for a Contemporary chair: base price of chair + $20

Price for a Contemporary place-setting: base price of a place-setting + $20

Price for a Contemporary center-piece: base price of a center-piece + $25

Price for a Modern chair: base price of chair + $100

Price for a Modern pace-setting: base price of a place-setting + $30

Price for a Modern center-piece: base price of a center-piece + $40

A client (who uses the services of the *PartyOrders*) supplies the following information:

* No. of tables required.
* Style of chairs (vintage, contemporary or modern), place-settings and center-piece.

**Note:** The client is required to choose the same style for chairs, place-settings and center-piece. For example, if the client chooses vintage for seating, then the place-settings and center-piece should also be vintage in style.

1. Draw an UML diagram of the classes you have implemented and where you have used the design patterns. Use the approach discussed in class, to show the design patterns used.
2. Implement your design using Java
3. Discuss how your design is improved (or not) using the creational patterns. What OO principles would your design support (for example, OCP, Dependency Inversion and so on). Discuss any disadvantages of using the design patterns to address the problem.
4. Define a class called **Party-Setting** (include this class in the UML diagram) with the following members:

**Data Members:**

**noOfTables**: an integer

**tables**: An array of Table-Setting (where each table-setting contains a Center-piece, place setting and a seat) in the chosen style.

**Methods:**

A method called **calculateCost() which calculates and returns the total cost for the party-setting (total cost of all the table-settings).**

A method called **displayPartySetting()** which displays the number of tables and what each table contains (place settings etc and the style).

Note: You are free to include any other data or methods of your choice.

From the main(), create an instance of Party\_Setting with data values of your choice (for the no. of tables, style etc). Call the methods, **displayPartySetting (**) and **calculateCost().**

**What to submit:**

1. **A zip file (your *firstinitialLastName*\_assign2.zip) with the following**

* A readme document with the UML diagram. Include your name and course name on the document. **(20 pts)**
* Discussion document **(20 pts)**
* Source code (include comments wherever necessary) **(40 pts)**
* A screen shot of the output of your program **(10 pts)**
* **A reflections document (10 pts)**:
  + What did you like about this assignment?
* What did you find difficult?
* Have you learned anything in this assignment that you did not know before?
* Have you found the lectures on creational patterns useful to address the problem?
* Any other comments which are relevant.