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**BLG 468E**

**OBJECT-ORIENTED**

**MODELLING AND DESIGN**

CRN: 22538

INSTRUCTOR: FEZA BUZLUCA

**ASSIGNMENT #4**

Submission Date: 27.04.2015

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**a) UML Class diagram**

**b) Design patterns**

* Factory and strategy design patterns are used.
* Factory pattern is used for **GPACalculationStrategyFactory** to create different GPA calculation strategies.
* Strategy pattern is used for switch between different GPA calculation strategies which implements GPA calculation strategy interface.

**c) Flexibility**

* Strategy pattern gives flexibility to change GPA calculation strategies on run time with the help of polymorphism. All strategies implements one GPA calculation interface which supplies common interface for different strategies. Students’ **GPACalculationStrategy** pointer points to the selected GPA calculation strategy.
* Student can get a strategy from factory in runtime and change its behavior dynamically. Factory gives necessary GPA calculation strategy pointers to the student.