

# DesignPatterns

## Assignment 1

### UMLClass diagrams and Git/GitHub intro

*This assignment must be done individually*

Part 1: Git (Done in conjunction with Part 2)

For this assignment you will be submitting it via GitHub. For this assignment part of the submission will be demonstrating the Feature Branch Workflow use class notes or refer to the great tutorial <https://www.atlassian.com/git/tutorials/comparing-workflows/feature-branch-workflow>.

*Before doing these steps on your assignment repo I would highly recommend creating a repo on your account as a sandbox to try these steps out before you do them on your assignment repo.*

**Make sure you are logged into GitHub with the id you will be using for the class.** The following URL: <https://classroom.github.com/a/k9OlvlRW>

will take you to a page to create a private repo for your GitHub Id for the assignment and an initial shell repository. The basics of what you will be doing is cloning the shell private repo I have created for you. You will then create a feature branch named “CompanyModel”. You will make multiple commits to this branch. You will push the branch and commits to GitHub and when you are ready to submit your assignment you will create a “pull request” through the GitHub website and title your pull request “Assignment 1 submission”

Details:

Clone your repository by executing the following:

```
git clone https://github.com/CCSU-DesignPatterns-F20/assignment1-yourgithubid.git
```

Change your working directory to your newly created local git repository:

```
cd assignment1-yourgithubid
```

Create your feature branch off of the *master* branch:

```
git checkout -b CompanyModel master
```

Push your branch to GitHub

```
git push origin CompanyModel
```

Modify ReadMe.md to have the first line be your name and save, Stage your change, commit it, push it to GitHub

```
git add ReadMe.md or git add . (adds all files with mods)
```

```
git commit (For your commit message make “Add name” your first line and say why you added your name for the description)
```

git push

Create your UML below for part 2 and stage, commit, and push it in one or multiple commits if you continue to update/revise

When you are done and ready to submit the assignment make sure GitHub has your latest by committing and pushing. Then go to your repository on the GitHub website. You will see a green button that says “Compare and pull request”, or if you click on branches you will see one next to your branch that says “New pull request”. Click one of those. For the pull request for the name enter “Assignment 1 submission” and for the description put “Submit assignment to @caw13” and make sure to then click “Create pull request”. **Note you should NOT merge the CompanyModel branch into the master branch yourself.** You have now submitted your assignment. After you do that please also hit submit for the assignment in Blackboard as well, that submission doesn’t need to contain anything.

## Part 2: UML

Your assignment is to create the class diagram in a UML tool for the class and relationship descriptions covered in class to create class diagram for this domain description:

- Create a class diagram for the following company description (don’t forget a class for “Company” as well)
  - Multiple departments each with multiple workers
  - A worker can be either an employee or an intern, where the employee and intern classes are mutually exclusive (i.e. Worker should be an interface)
  - Head of each department is a manager
  - Manager is specialization of an employee
  - Employee has 0 or more addresses and the employee has a link to address but not vice versa
  - HumanResources class has operations to create employees and managers and assign them to departments. It also maintains a list of all employees
- Draw the following where applicable:
  - Inheritance, realization, association/aggregation/composition, dependency

Within the class diagram you should indicate all specialization, realization, aggregation, composition, and dependency relationships. For each class you identify add any attributes and/or method appropriate for the relationship. By this I mean not all attributes that would be on each class, but make sure and relationship you have drawn is supported by the attributes/methods that would illustrate why that relationship exists. For simplicity you do not need to specify the type of the attribute as long as the name of the attribute or method conveys the relationship. For example, if you name the attribute *employee* I will know this indicates a relationship with a single employee and if you named it *employees* I will know it indicates more than one. Note you do not need to write every attribute or method for each class just the ones relevant to the relationships.

For example if it is an aggregate relationship, make sure the attribute is on the appropriate ownership class. If the relationship is navigable the attribute to support that navigability must be present (or not present if not navigable).

For the assignment you will submit the image of your class diagram to GitHub via adding the image file to your repository created above committing and pushing it to GitHub. Any UML tool is acceptable as long as it can generate an image that displays the visibility of all attributes and methods as well as the relationships using the notation we used in class. For the tool we

used in class Lucidchart.com export your diagram as a PNG. **Please pay close attention to the details of the arrow types in your diagrams as the correctness of those details will be a focus of grading this and future assignments in this class.**

See submission instructions in part 1