



CSE 12: Week 2 Discussion

1-12-21

Focus: Interfaces



Reminders

- PA1 due tomorrow (Jan 13th) @ 11:59 PM
- PA2 released Thursday morning (~8am), first **closed** assignment

Submitting to Gradescope


Each programming assignment will have two separate Gradescope assignments to submit to i.e.

- “Programming Assignment 1 - code”
- “Programming Assignment 1 - questions”




The writeup will specify which files to upload. Only submit those files! You may encounter errors if you do not. We suggest using a zip file.

Once you submit, you will see the autograded results. If there is a compile error it will say so. Please read the error messages before seeking help from a tutor/TA

Submit Programming Assignment

 Upload all files for your submission

SUBMISSION METHOD

☒  Upload ☐  GitHub ☐  Bitbucket

DRAG & DROP

Any file(s) including .zip. Click to browse.

Upload

Cancel

Interface

- Contains **fields** and **method signatures** only. Classes implementing the interface must override and define these methods.
- To define, use keyword “**interface**”.
- To implement, use keyword “**implements**”.
- Allows for abstraction

```
public interface User{
    boolean canAccess(String assignmentID);
    ...
}
public class Instructor implements User{
    boolean canAccess(String assignmentID){
        ...
    }
    ...
}
```

Which one of these is a compile error?

- A. `Student s1 = new Student("Andrew");`
- B. `User u1 = new Student("Jane");`
- C. `Student s2 = new User("Rachel");`

Answer - C

An interface cannot be initialized on its own. Interfaces are utilized by implementing them through other concrete classes. So you cannot initialize User since it is an interface.

Worksheet

`boolean canAccess(String assignmentId)` - A method that returns a boolean indicating whether the user can access an assignment.

- Instructors can access all assignments
- Students can only access assignments from their own list

`void printAssignments(User u, String[] allAssignments)` - A method that loops through all assignments and prints the boolean value of `canAccess` of the User for each assignment.

Worksheet solutions - blank 1.1

```
public boolean canAccess(String assignmentId) {  
    for (int i = 0; i < this.assignments.length; i++) {  
        if (this.assignments[i].equals(assignmentId)) {  
            return true;  
        }  
    }  
    return false;  
}
```


Worksheet solutions - blank 1.2

```
public boolean canAccess(String assignmentId) {  
    return true;  
}
```

Worksheet solutions - blank 1.3

```
public static void printAssignments(User u, String[] allAssignments)
{
    for (int i = 0; i < allAssignments.length; i++) {
        boolean access = u.canAccess(allAssignments[i]);
        System.out.println(access);
    }
}
```

Interfaces

Allows code reuse by having multiple classes that share a type (subtype polymorphism).