In-Lab Demo - Nov. 6

Programming with Inheritance

extends, equals
*Visualizing Child Objects*
Tracing Method Calls in Eclipse

Student Classes (without inheritance)

```java
public class ResidentStudent {
  private String name;
  private Course[] courses; private int noc;
  private double premiumRate; /* assume a m

  public ResidentStudent (String name) {
    this.name = name;
    this.courses = new Course[10];
  }

  public void register(Course c) {
    this.courses[this.noc] = c;
    this.noc ++;
  }

  public double getTuition() {
    double tuition = 0;
    for(int i = 0; i < this.noc; i ++) {
      tuition += this.courses[i].fee;
    }
    return tuition * this.premiumRate;
  }
}
```

```java
public class NonResidentStudent {
  private String name;
  private Course[] courses; private int noc;
  private double discountRate; /* assume a

  public NonResidentStudent (String name) {
    this.name = name;
    this.courses = new Course[10];
  }

  public void register(Course c) {
    this.courses[this.noc] = c;
    this.noc ++;
  }

  public double getTuition() {
    double tuition = 0;
    for(int i = 0; i < this.noc; i ++) {
      tuition += this.courses[i].fee;
    }
    return tuition * this.discountRate;
  }
}
```

Student

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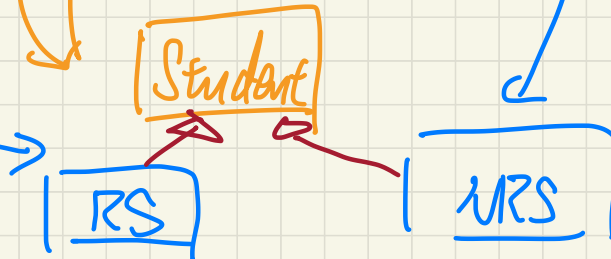
Recall: Student Classes (with inheritance)

```java
class Student {
  String name;
  Course[] registeredCourses;
  int numberOfCourses;
  Student (String name) {
    this.name = name;
    registeredCourses = new Course[10];
  }
  void register(Course c) {
    registeredCourses[numberOfCourses] = c;
    numberOfCourses ++;
  }
  double getTuition() {
    double tuition = 0;
    for(int i = 0; i < numberOfCourses; i ++) {
      tuition += registeredCourses[i].fee;
    }
    return tuition; /* base amount only */
  }
}
```
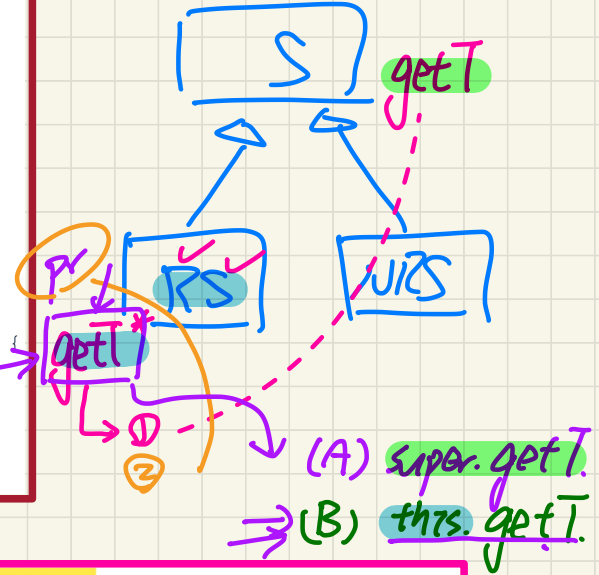
```java
class ResidentStudent extends Student {
  double premiumRate;   /* there's a mutator meth
  ResidentStudent (String name) { super(name); }
  /* register method is inherited */
  double getTuition() {
    double base = super.getTuition();
    return base * premiumRate ;
  }
}
```

```java
class NonResidentStudent extends Student {
  double discountRate;   /* there's a mutator method
  NonResidentStudent (String name) { super(name); }
  /* register method is inherited */
  double getTuition() {
    double base = super.getTuition();
    return base * discountRate ;
  }
}
```

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(A) super.getT.
(B) this.getT.