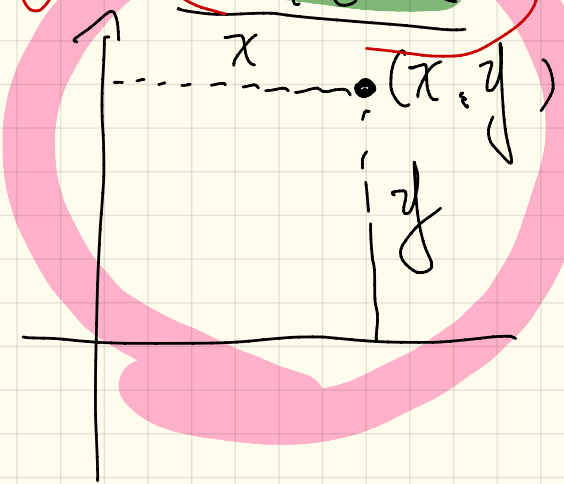
Lecture 24

Thursday Nov. 30

2-D points

getX()
getY()

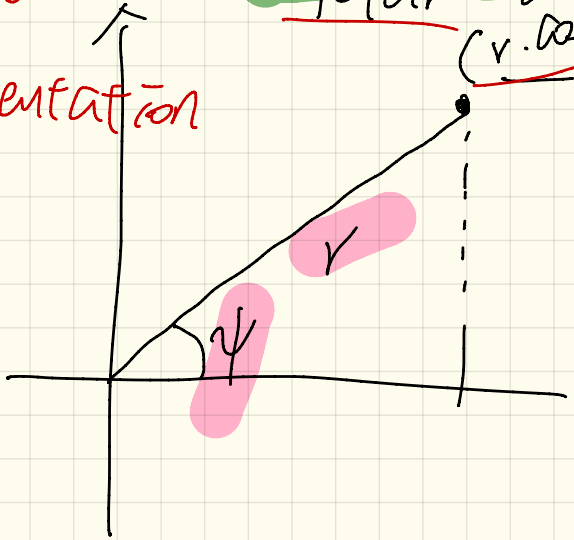
Cartesian

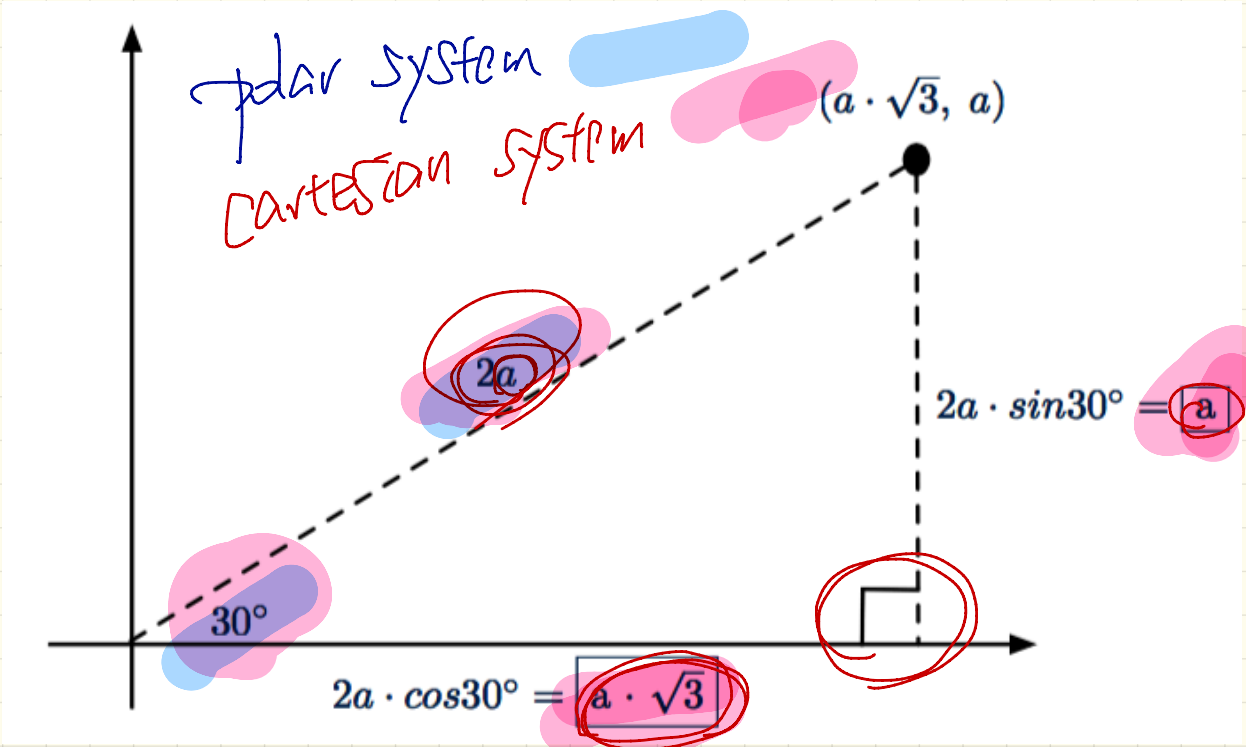


implementation

Polar

(r.cosψ, r.sinψ)



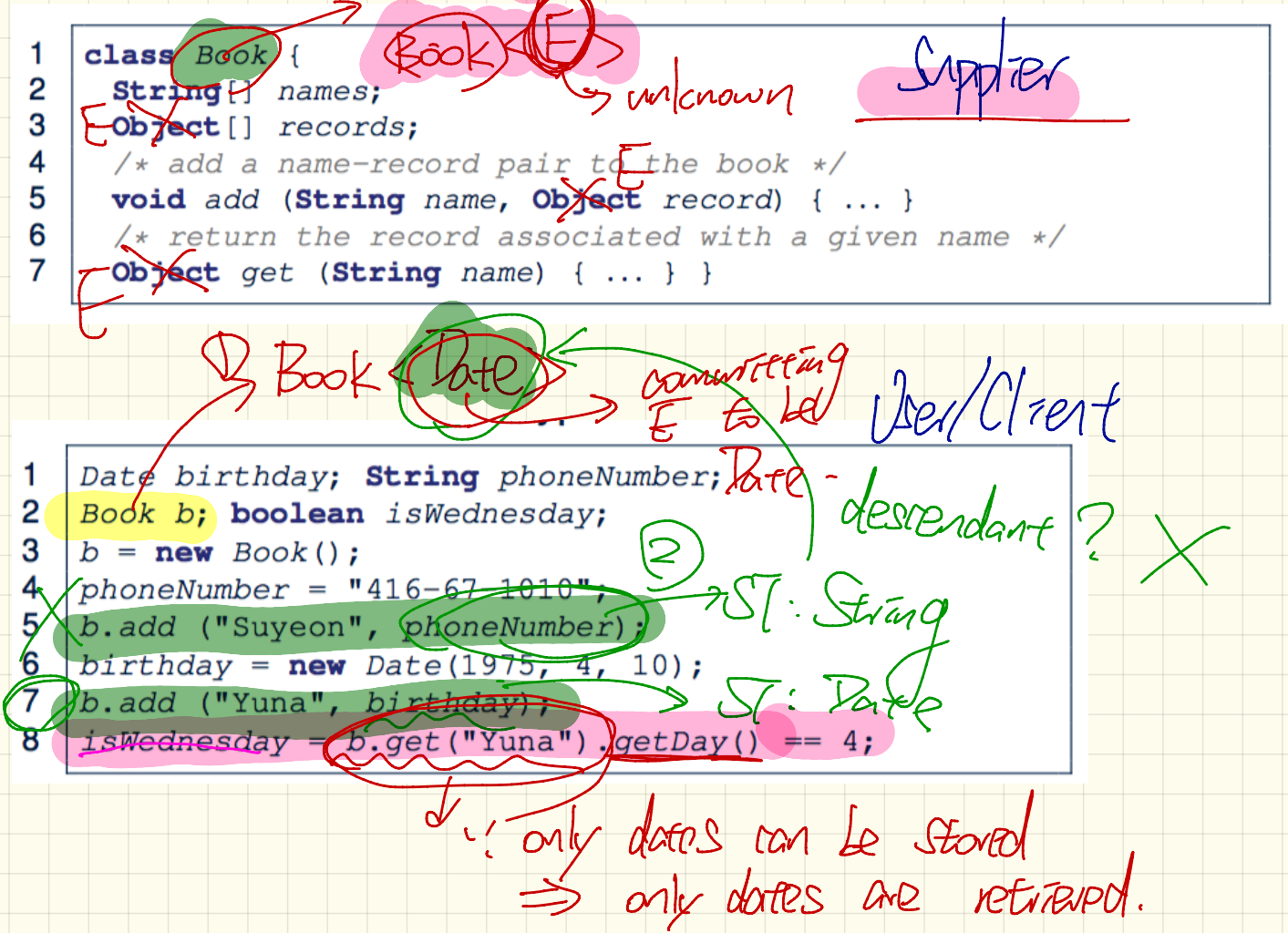

polar system
cartesian system
$(a \cdot \sqrt{3},\ a)$
$2a$
$2a \cdot sin30° = a$
$30°$
$2a \cdot cos30° = a \cdot \sqrt{3}$

```
1  class Book {
2    String[] names;
3    Object[] records;
4    /* add a name-record pair to the book */
5    void add (String name, Object record) { ... }
6    /* return the record associated with a given name */
7    Object get (String name) { ... } }
```

```
1  Date birthday; String phoneNumber;
2  Book b; boolean isWednesday;
3  b = new Book();
4  phoneNumber = "416-67-1010";
5  b.add ("Suyeon", phoneNumber);
6  birthday = new Date(1975, 4, 10);
7  b.add ("Yuna", birthday);
8  isWednesday = b.get("Yuna").getDay() == 4;
```

String

ST: object


class Book {
String[] names;
Object[] records;
/* add a name-record pair to the book */
void add (String name, Object record) { ... }
/* return the record associated with a given name */
Object get (String name) { ... } }
Book<E>
unknown
Supplier
Book<Date>
committing E to Date
User/Client
Date birthday; String phoneNumber;
Book b; boolean isWednesday;
b = new Book();
phoneNumber = "416-67-1010";
b.add ("Suyeon", phoneNumber);
birthday = new Date(1975, 4, 10);
b.add ("Yuna", birthday);
isWednesday = b.get("Yuna").getDay() == 4;
Date - descendant ? X
S: String
S: Date
only dates can be stored
⇒ only dates are retrieved.

```
1  class Book {
2    String[] names;
3    Object[] records;
4    /* add a name-record pair to the book */
5    void add (String name, Object record) { ... }
6    /* return the record associated with a given name */
7    Object get (String name) { ... } }
```

Book<String> tb;

Book<Date> bd;

bd.get(...) ST? Date

tb.get(...) ST? String

①

```
Node<String> n =
        new Node<String>("Tom", null);
```

②

```
Node<String> n =
        new Node<>(- - -);
```