Java Programming I

Session 7

I/O, Packages and code

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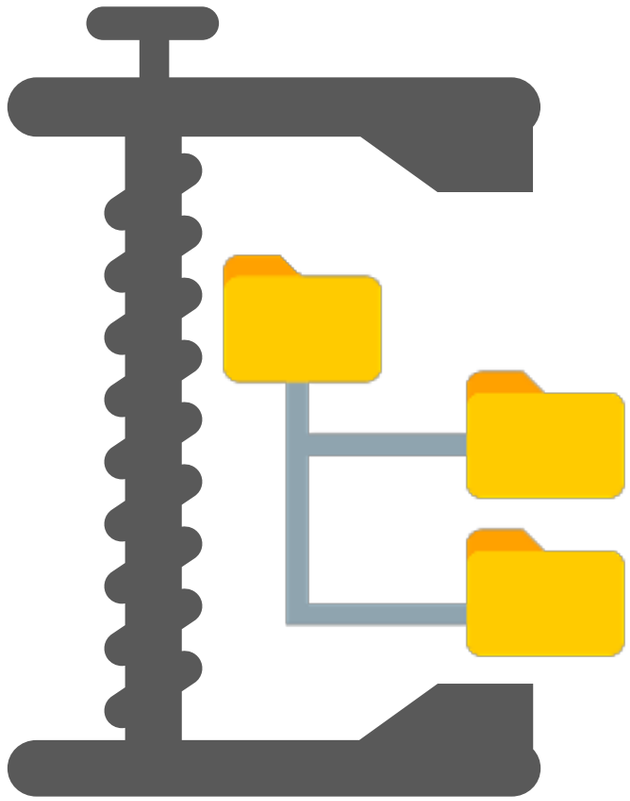
Agenda

- **File organization**
- **Basic I/O**
- **Dictionary**
- **Final Project Discussion**
- **Coding exercises**

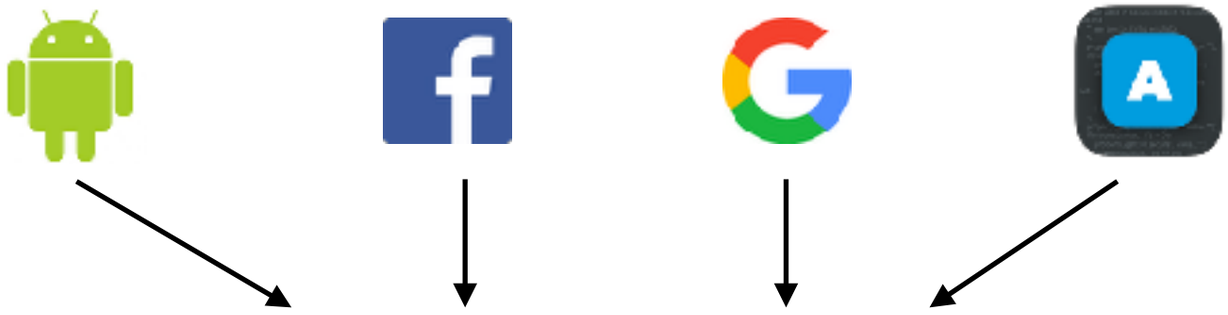
Packages

A way to organize objects



Packages

Grouping avoiding collisions



public class Account

?

android.accounts.Account

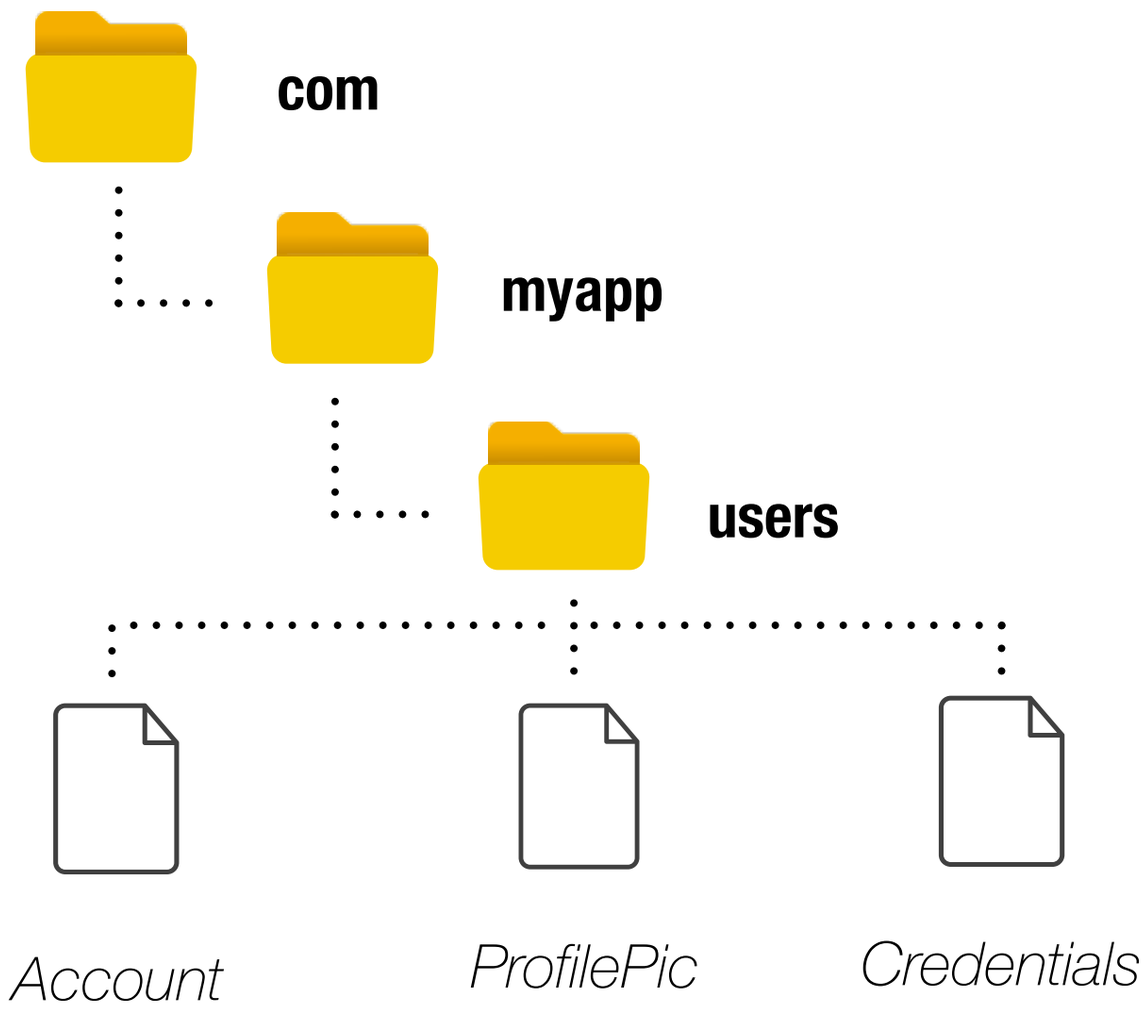
com.myapp.users.Account

com.facebook.accountkit.Account

com.google.api.client.auth.Account

Packages

Grouping avoiding collisions



import

getting classes from packages

I/O

Inputs and Outputs

Stdin

Reading Data

```java
package edu.ucla.ex.java.summer;
import java.util.Scanner;

public class IOHelloWorld {

    public static void main(String args[]){
        Scanner scan = new Scanner(System.in);
        System.out.println("What is your name?");
        String name = scan.nextLine(); // Reads line
        System.out.println("Hello " + name);
    }
}
```

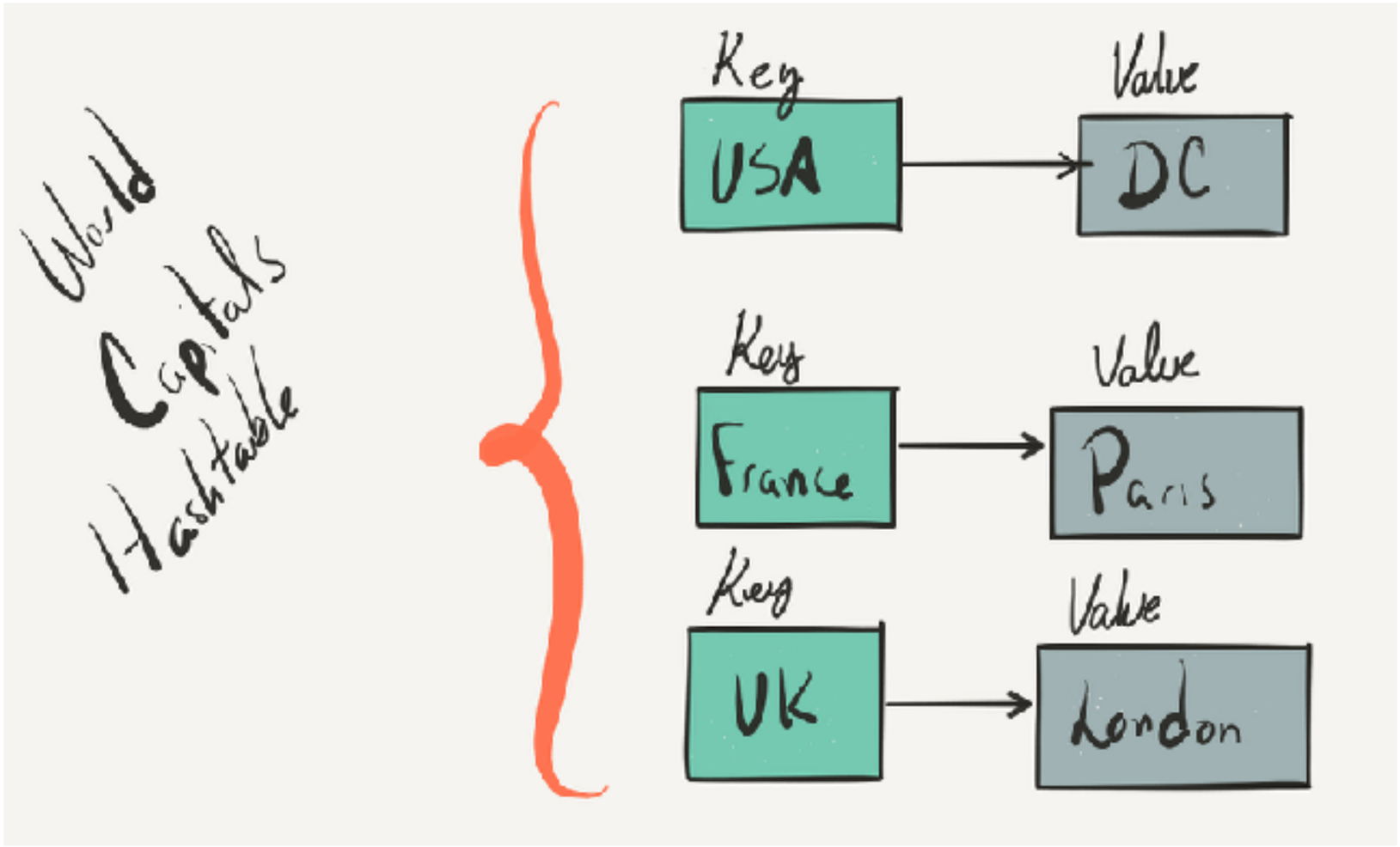
Stdin

Reading Files

```
package edu.ucla.ex.java.summer;
import java.util.Scanner;
import java.io.FileReader;

public class IOHelloWorld {

    public static void main(String args[]){
        try{
            Scanner in = new Scanner(new FileReader("src/ADayInTheLife.txt"));
            while(in.hasNextLine())
            {
                System.out.println(in.nextLine());
            }

        } catch (Exception e){
            System.err.println("Error " + e.getMessage());
        }
    }
}
```

Hashtable

Reading Files



- keys are unique
- one key per value
- fast search
- not ordered

Hashtable

Reading Files

```
Hashtable map = new Hashtable();
map.put("USA", "Washington, D.C.");
map.put("UK", "London");
map.put("Canada", "Ottawa");
map.put("Brazil", "Rio de Janeiro");
map.put("Brazil", "Brasilia");

System.out.println(map);
```

Word counter

Class exercise

```
import java.io.FileReader;
import java.util.Hashtable;
import java.util.Scanner;

public class WordCounter {

    public Hashtable count_words(String contents){
        Hashtable count = new Hashtable();
        // Do work here
        return count;
    }

    public static void main(String args[]){
        try{
            String contents = "";
            Scanner in = new Scanner(new FileReader("src/ADayInTheLife.txt"));
            while(in.hasNextLine())
            {
                contents += in.nextLine() + "\n";
            }
            WordCounter wc = new WordCounter();
            Hashtable count = wc.count_words(contents);

            System.out.println(count);

        } catch (Exception e){
            System.err.println("Error " + e.getMessage());
        }
    }
}
```

Currency Exchange

Final Project

Given a file with the USD to <CURR> conversion rate

Convert X amount of Currency A to Currency B

User inputs are the source and destination currency symbols and the amount.

$3000 AUD = $42,641.40 MXN

- Use of Object oriented programming: 20%
- Use of logical or arithmetic ops: 10%
- Use of data structures (Array, Dictionary, LinkedList): 10%
- Control Flow (if/while): 10%
- Works: 50%