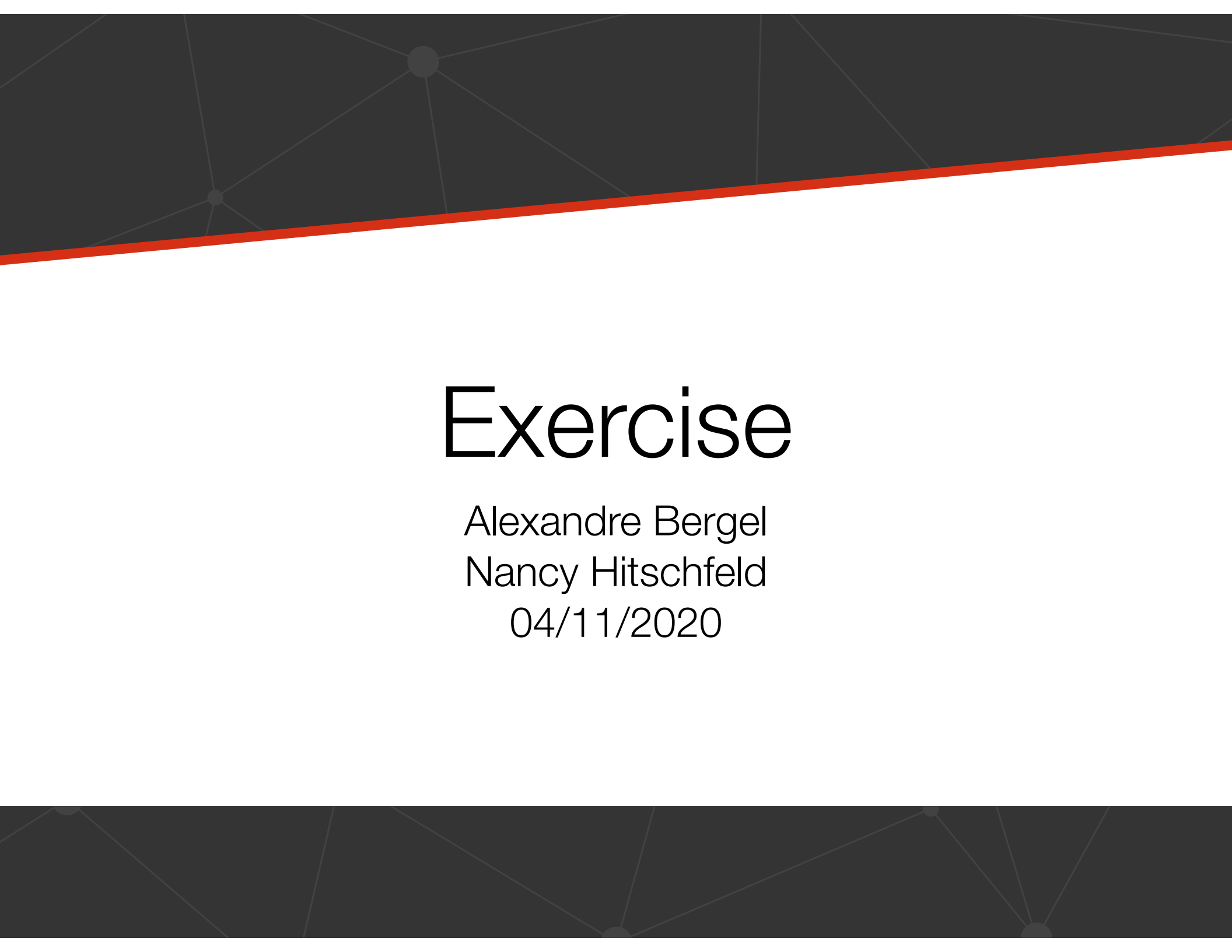




Exercise

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The translation problem

Modern and successful applications needs to be available in different natural languages (English US, English UK, German, French, Spanish, ...)

How would you implement such a solution?

Code provided here

During the class, we went through several design of how to address the mentioned problem

These slides indicates the solutions that seems the most interesting for the problem

The video of the class may be found on

<https://www.dropbox.com/s/h68khej0oqjvj8f/15-Exercise.zip?dl=0>

```
package myapplication;

import translator.Spanish;
import translator.StringTranslator;

public abstract class HelloWorld {
    public static void main(String[] args) {
        StringTranslator st = new StringTranslator(new Spanish());
        String s = st.get("Hello World!");
        System.out.println(s);
        System.out.println(st.get("Hello CC3002!"));
        System.out.println(st.get("Hello World and CC3002"));
    }
}
```

```
package translator;
```

```
public class English extends Language {  
    //Since the text is provided in english, there is no need to translate  
    public String translate(String stringInEnglish) {  
        return stringInEnglish;  
    }  
}
```

```
package translator;
```

```
public abstract class Language {  
    public abstract String translate(String stringInEnglish);  
}
```

```

package translator;

import java.io.BufferedReader;
import java.io.File;
import java.io.FileReader;
import java.util.HashMap;
import java.util.HashSet;

public class Spanish extends Language {
    private HashMap<String, String> hashMap;
    private HashSet<String> wordsLeftToTranslate = new HashSet<>();

    private HashMap<String,String> getHashMap() {
        if (hashMap != null) return hashMap;

        hashMap = new HashMap<>();
        try {
            File f = new File("englishToSpanish.txt");
            BufferedReader br = new BufferedReader(new FileReader(f));

            String aLine;
            while ((aLine = br.readLine()) != null) {
                String[] ss = aLine.split(":");
                hashMap.put(ss[0], ss[1]);
            }

            return hashMap;
        }
        catch(Exception e) {
            System.err.println(e);
        }
        return null;
    }
}

```

...

...

//Since the text is provided in english, there is no need to translate

```
public String translate(String stringInEnglish) {
    StringBuilder sb = new StringBuilder();
    String[] words = stringInEnglish.split(" ");
    int index = 0;
    for(String englishWord : words) {
        if (this.getHashMap().containsKey(englishWord))
            sb.append(this.getHashMap().get(englishWord));
        else {
            wordsLeftToTranslate.add(englishWord);
            sb.append(englishWord);
        }
        index++;
        if(index < words.length)
            sb.append(" ");
    }
    return sb.toString();
}
```

```
package translator;

public class StringTranslator {
    private Language language = new English();

    public StringTranslator(Language languageToUse) {
        this.setLanguage(languageToUse);
    }

    public StringTranslator() {
        this(new English());
    }

    public void setLanguage(Language aLanguage) {
        language = aLanguage;
    }

    public String get(String stringInEnglish) {
        return language.translate(stringInEnglish);
    }
}
```

File named englishToSpanish.txt

Hello:Hola
World:Mundo
Thanks:Gracias
and:y

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