Lecture 6: Nested classes, anonymous classes, lambda expressions

Exercise: Program for printing a list of palindromes

Using the ideas and code from the exercise in week 5, you should solve the following tasks:

1. Printing out a list of words based on the following interface:

```
import java.util.List;
import java.util.function.Predicate;

public interface IWord {
    int size();

    void printWord();

    IWord reverseWord();

    boolean isPalindrome();


    static void printWords(List<IWord> words, Predicate<IWord> predicate) {
     // print using forEach method on words
    }
}
```

Static printWords() method prints words that satisfy the given predicate. The implementation should use forEach() method on lists and lambda expression to test the predicate.

2. Realization of class Word which implements interface IWord:

```
public class Word implements IWord {
        private List<String> value;

        public Word(String s) throws NotWordException {
       // …
       }

       private Word(List<String> list) {
           value = list;
       }
// …

}
```

The following are requirements and hints for the implementation of this class:

- The class Word should keep its characters as an List<String> in a private member variable, for example named value. List of characters can be created using Arrays.asList(word.split("")).
- Pubic constructor Word(String s) should check whether the word is valid using method word.matches("[A-Za-z]+") and throw NotWordException if it is not valid.

- NotWordException should be defined as an inner class withing Word class.
- Method `void printWord()` should use value.forEach() method and lambda expression for printing word characters
- Method `public IWord reverseWord()` returns a new word which has a reversed list of characters. It should be implemented using private constructor Word() to create a new Word.
- Method public boolean isPalindrome() uses method reverseWord to test whether a word is palindrome.

3. **Implement the main class which enable a user to enter several words and then print words which are palindromes.**

   The main class should use a nested static class Palindrome which has a method for printing palindromes from a list of words:

```
public static void printPalindromes(List<IWord> words)
```

   This method should use printWords() from interface IWord to print those words which are palindromes