



**Université
Gustave
Eiffel**



JAVA AVANCEE

Structure de données persistante (fonctionnelle)

TP7

Saravanane MANICOME

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Exercise 1

Question 1

```
package fr.uml.v.seq;
```

Question 2

```
@Override
public String toString() {
    return values.stream() Stream<Object>
        .map(mapping) Stream<T>
        .map(Objects::toString) Stream<String>
        .collect(Collectors.joining(delimiter: ", ", prefix: "<", suffix: ">"));
}
```

Question 3

```
@SafeVarargs
public static <E> Seq<E> of(E ...values) {
    return Seq.from(List.of(values));
}
```

Question 4

```
public void forEach(Consumer<? super T> consumer) {
    Objects.requireNonNull(consumer);
    values.stream().map(mapping).forEach(consumer);
}
```

Question 5

```
public <E> Seq<E> map(Function<? super T, ? extends E> function) {
    Objects.requireNonNull(function);
    return new Seq<>(values, e -> function.apply(mapping.apply(e)));
}
```

Question 6

```
public Optional<T> findFirst() {
    if(values.isEmpty()) {
        return Optional.empty();
    }

    return Optional.of(mapping.apply(values.get(0)));
}
```

Question 7

```
public class Seq<T> implements Iterable<T>
```

```
@Override
public Iterator<T> iterator() {
    return new Iterator<>() {
        private final int size = values.size();
        private int index;

        @Override
        public boolean hasNext() {
            return index < size;
        }

        @Override
        public T next() {
            if(!hasNext())
                throw new NoSuchElementException();

            var value :T = get(index);
            index++;
            return value;
        }
    };
}
```

Question 8

```
public Stream<T> stream() {
    var characteristics = Spliterator.IMMUTABLE | Spliterator.ORDERED | Spliterator.NONNULL;
    return StreamSupport.stream(Spliterators.spliterator(values.toArray(), characteristics), parallel: false);
}
```

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Exercice 2

Il n'y a pas grand-chose à faire pour Seq2 hormis reprendre le même code de Seq et adapter le code pour passer d'une liste à un tableau. Puisque j'utilise principalement des Stream dessus la transition est simple.