Welcome to the

Java Course

Module 2 – Day 04

Content of the course

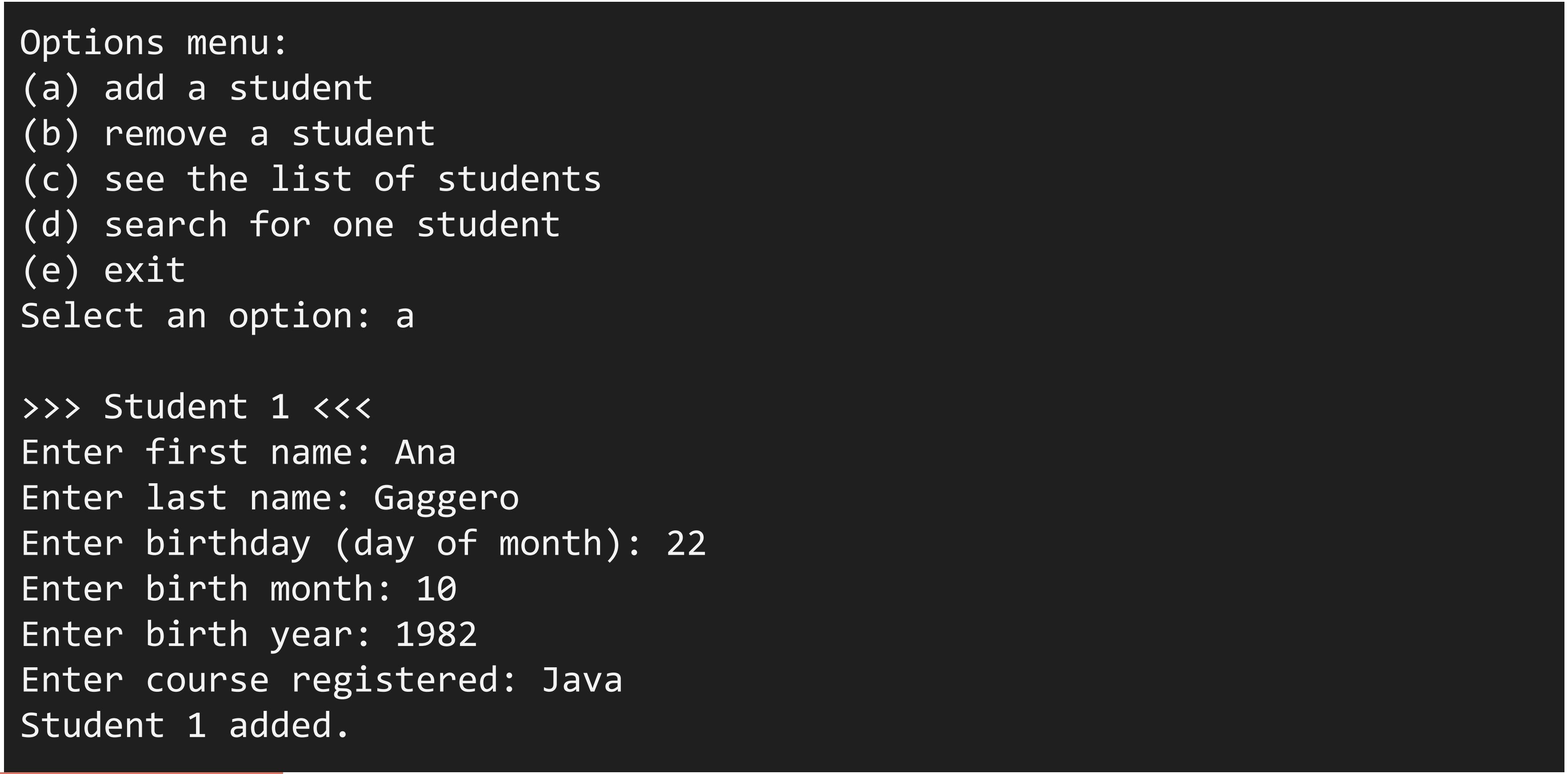
- Functions and procedures
- Arrays and lists
- Search and sorting algorithms
- Data structures
- Computational complexity

Project Students - Step 8

Modify the program:

- To allow adding and deleting students

Project Students - Step 8



```
Options menu:
(a) add a student
(b) remove a student
(c) see the list of students
(d) search for one student
(e) exit
Select an option: a

>>> Student 1 <<<
Enter first name: Ana
Enter last name: Gaggero
Enter birthday (day of month): 22
Enter birth month: 10
Enter birth year: 1982
Enter course registered: Java
Student 1 added.
```

Project Students - Step 8

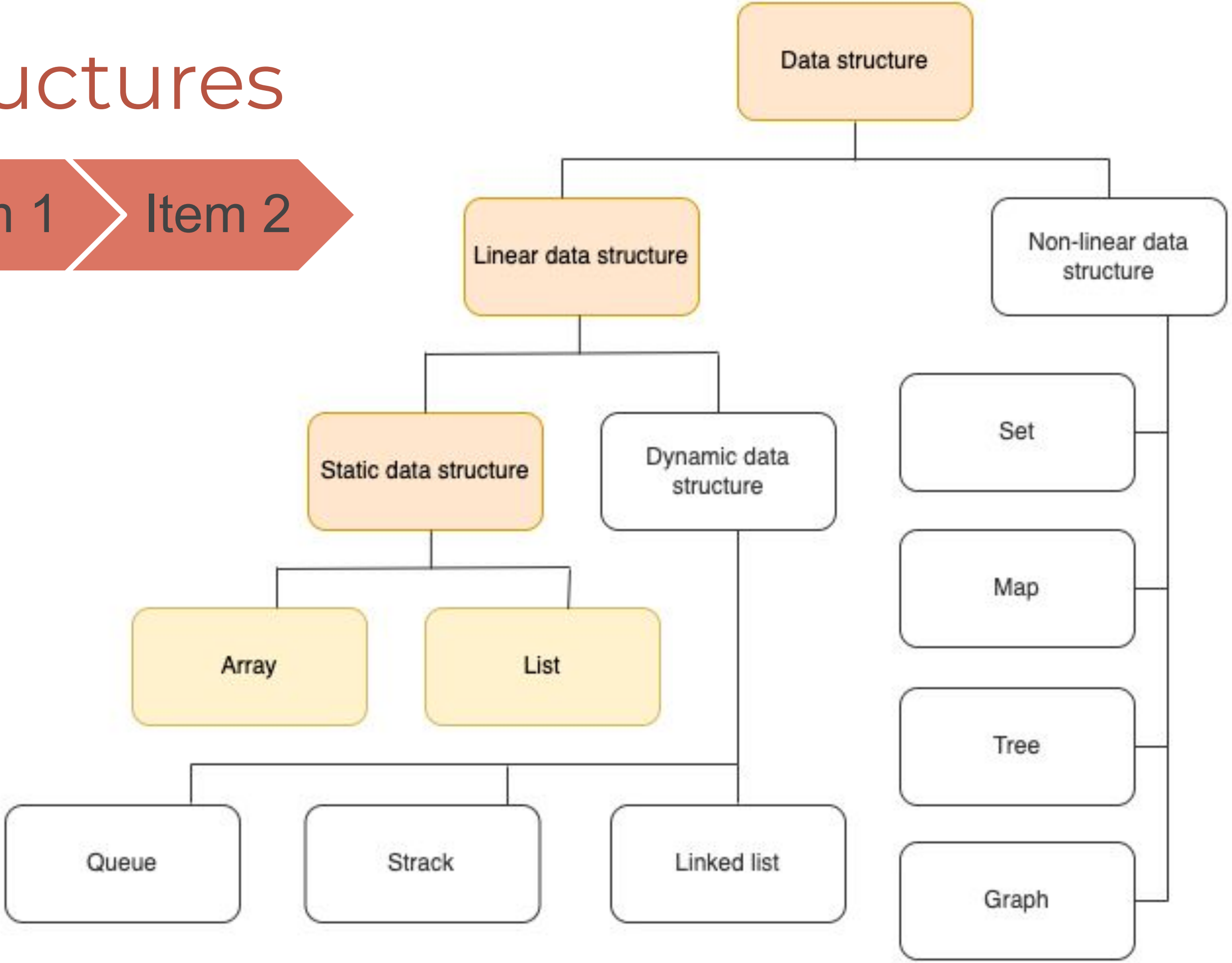
```
...
Select an option: b
Enter the name of the student to be removed: Tom Grass
Student removed.
```

```
...
Select an option: c
List of students:
Ana Gaggero born the 22 of October 1982. Registered to Java
Valerie Muller born the 12 of April 1990. Registered to Python
```

```
...
Select an option: d
Enter the student name: Tom Grass
Student:
Tom Grass born the 7 of January 1980. Registered to Java
```

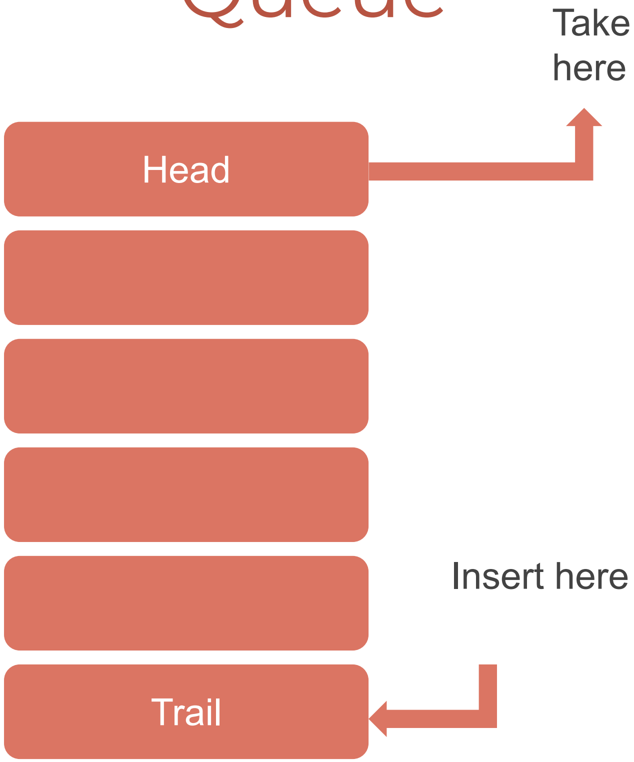
Data structures

Item 0 Item 1 Item 2



Linear data structures

Queue



Take here

Head

Insert here

Trail

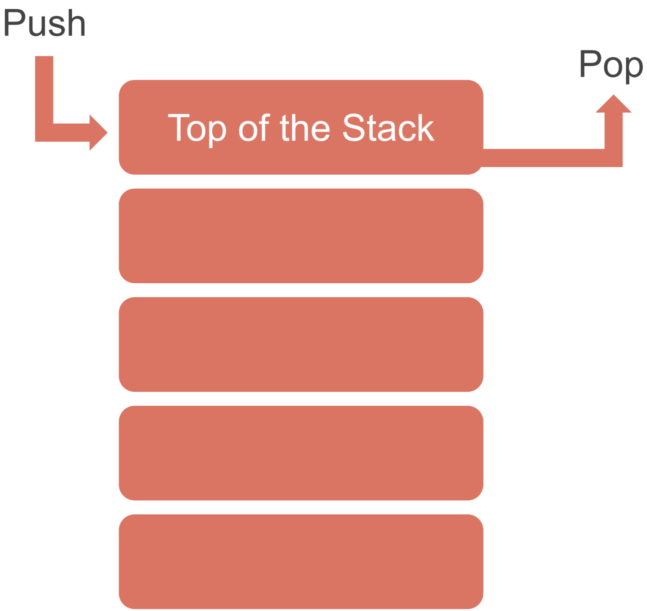
Example

```
// Create a Queue of Integers using LinkedList
Queue<Integer> queue = new LinkedList<>();

// Add numbers to the queue
queue.add(7);
queue.add(2);
queue.add(520);

// Displaying the Queue
System.out.println("Queue elements: " + queue);

//Remove the first element and print the queue again
int number = queue.remove();
System.out.println("Queue elements: " + queue);
```

Output

```
Queue elements: [7, 2, 520]
Queue elements: [2, 520]
```

Stack



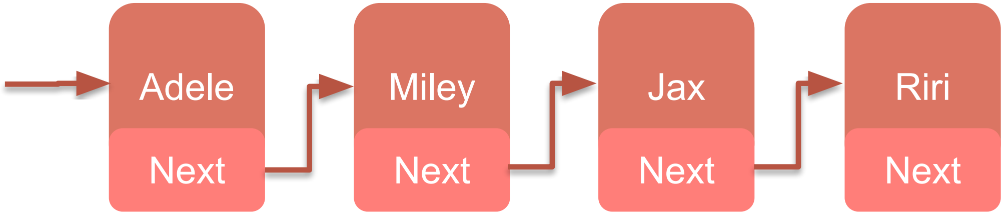
Example

```
// Create a Stack of Strings
Stack<String> stack = new Stack<>();

// Add words to the stack
stack.push("Hello");
stack.push("World");
stack.push("!");

// Displaying the Stack
System.out.println("Stack elements: " + stack);

//Remove an element and print the stack again
String word = stack.pop();
System.out.println("Stack elements: " + stack);
```

Output

```
Stack elements: [Hello, World, !]
Stack elements: [Hello, World]
```

Linked List



Adele
Next
Miley
Next
Jax
Next
Riri
Next

Example

```java
// Create a LinkedList of Strings
List<String> list = new LinkedList<>();

// Add words to the list
list.add("Hello");
list.add("World");
list.add("!");

// Displaying the list
System.out.println("List elements: " + list);

//Remove an element and print the list again
String word = list.remove(1);
System.out.println("List elements: " + list);
```

Output

```
List elements: [Hello, World, !]
List elements: [Hello, !]
```

Now YOUR TURN !

Let’s do the exercises