15/02/2025, 14:14 ICSE - Selectionsort



## **Introduction to Computer Science for Engineers**







This assignment **closed** November 17, 2024 at 23:15.

## **Assignments**

- 1. What is the difference between in-place and out-of-place sorting algorithms?
- 2. Implement the function selection\_sort(array: list) -> None. It should sort the array array via selection sort in-place.

For the next task you will need the external Python package matplotlib. It is available online via a package manager (e.g. PyPi). Install the package on your system, search for a tutorial online on how to install Python packages on your system, if necessary.

Place the script animation.py in the same folder as selection\_sort.py and run the script. It will generate two plots, the first one will visualize your sorting algorithm at different time steps. The second one will animate the sorting process.

3. Describe how Selectionsort works with help of the two plots. Change the animation.py script to your needs.



## **Template files**

Get all files in an archive templates.zip or templates.tgz.



selection\_sort.py



15/02/2025, 14:14 ICSE - Insertionsort



## **Introduction to Computer Science for Engineers**







This assignment **closed** November 17, 2024 at 23:15.

# **Assignments**

1. Implement the function insertion\_sort(array: list) -> None. It should sort the array array via insertion sort in-place.

For the next task you will need the external Python package matplotlib. It is available online via a package manager (e.g. PyPi). Install the package on your system, search for a tutorial online on how to install Python packages on your system, if necessary.

Place the script animation.py in the same folder as insertion\_sort.py and run the script. It will generate two plots, the first one will visualize your sorting algorithm at different time steps. The second one will animate the sorting process.

2. Describe how insertionsort works with help of the two plots. Change the animation.py script to your needs.



# **Template files**

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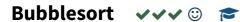
insertion\_sort.py



15/02/2025, 14:14 ICSE – Bubblesort



#### **Introduction to Computer Science for Engineers**



This assignment **closed** November 17, 2024 at 23:15.

#### **Assignments**

- 1. Implement the function bubble\_sort(array: list) -> None. It should sort the array array via bubble sort in-place.
- 2. Implement the improvement for bubble sort that we discussed during the lecture.

For the next task you will need the external Python package matplotlib. It is available online via a package manager (e.g. PyPi). Install the package on your system, search for a tutorial online on how to install Python packages on your system, if necessary.

Place the script animation.py in the same folder as bubble\_sort.py and run the script. It will generate two plots, the first one will visualize your sorting algorithm at different time steps. The second one will animate the sorting process.

3. Describe how bubblesort works with help of the two plots. Change the animation.py script to your needs.



## **Template files**

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bubble\_sort.py

