

User demand questionnaire on the development of animation teaching software for sorting algorithm

Our project aims to design a software which can help users who either have no experience in coding or know a little about sorting algorithms and their correctness. The basic feature of this software is clearly showing the swapping animation of sorting elements step by step. Users can also interact with the software to control the sorting process. Additionally, there are different kinds of sorting algorithms provided, such as bubble sort, quick sort, merge sort, etc. As for more advanced modules we designed, we plan to focus on the correctness of sorting algorithms, demonstrating why a specific sorting algorithm is correct. Moreover, we plan to add some additional functions, which needs your help!

All information in this questionnaire is used for research and project development, and will not be disclosed, transmitted or used for other purposes. The filling time of the questionnaire would be no more than 2 minutes. Please answer those questions according to your actual ideas. Thank you!

(1) What is your gender?

- ☐ Female
- ☐ Male
- ☐ Uncertain

(2) What year are you in?

- ☐ Year 1
- ☐ Year 2
- ☐ Year 3
- ☐ Year 4

(3) I learn algorithms because of:

- ☐ My interest (not examination-oriented)
- ☐ Academic requirements (examination-oriented)
- ☐ Both

(4) How well do you know about sorting algorithms? (The content of following questionnaire will be adjusted according to your answer)

- ☐ I don't know about it at all.
- ☐ I have some relevant knowledge.
- ☐ I understand the content well.

(5) In your opinion, a software which helps learn algorithms should more focus on:

- ☐ Interestingness (have some characters of game, which is entertaining, with lively and attractive interface)
- ☐ Functionality (concise interface, with learning function only)

(6) How much time are you willing to spend in learning with our software?

- ☐ Less than 15 min.
- ☐ 15 min ~ 30 min
- ☐ 30 min ~ 60 min
- ☐ 60 min ~ 120 min
- ☐ 120 min or longer.

(7) You learn algorithms or programming mainly through:
(multiple-choice)

- ☐ Related courses in school
- ☐ Self-learning website or platform (e.g. rookie course, MOOC, Tencent class)
- ☐ Bilibili
- ☐ Computer training institutions
- ☐ Related forums (e.g. CSDN, Baidu Post Bar, etc.)
- ☐ Auxiliary learning software

Other: _____

(8) Which platform do you prefer to use this software?

(Please sort the items, e.g. like to use mobile terminal most, and computer terminal second, then: 1 mobile, 2 computer...)

- PC/Mac (need to download and install)
- IOS/Android (a mobile app)
- WeChat miniApp
- Website

(9) What goal you want to achieve through learning? (multiple-choice)

- ☐ Understand the concept of sorting algorithms.
- ☐ Master the principle of sorting algorithms.
- ☐ Master the code implementation of sorting algorithms.

Other: _____

(10) **What language would you like to present the code?**

(multiple-choice)

- ☐ C
- ☐ Java
- ☐ Python
- ☐ PHP

Other: _____

(11) **Which following function do you prefer?** (multiple-choice)

- ☐ Display animation (speed control, go to previous step or next step, pause button).
- ☐ A user guide for beginners.
- ☐ Multilingual settings.
- ☐ Show the recently used or learned algorithm
- ☐ Quick export of brief notes
- ☐ None of above: _____

(12) (optional) **What other functions you think the software should have?** You are welcome to talk about your expectations of our software.