Sorting Group Project

Learning Goals

- We have already learnt the Bubble and Improved bubble sort methods
- We will learn the algorithms (steps) for four other sorting methods:
  - Selection
  - Insertion
  - Merge or Heap
  - Quick

Learning Goals Continued

- We will be able to discuss:
- a) Efficiency (number of passes, comparisons, swaps,..)
- b) Suitability of each sort
- c) Compare and contrast

- We will be able to code:
  - Bubble Sort
  - Improved Bubble Sort
  - Selection Sort
  - Insertion Sort

Task

- Your group's task is to become experts in the understanding and application of an assigned Sorting Method.
- All members in the group should have a thorough understanding of the sorting method to demonstrate and answer questions on the method to the teacher and the whole class.
- The following topics must be addressed by your group in addition to other relevant and creative ideas that you may wish to consider in your group: **(See next slide)**

Task Continued

- How the items in the array are re-arranged to sort them in an order?
- How are the items swapped?
- How many passes does the array go before it is sorted?
- How many comparisons are made before the array is put into an order?
- Is there a formula for the number of passes, comparisons given N number of items in an array?
- How would you creatively, visually teach this method to the class?
- Provide a note taking template and an activity for them to do in class
- Other topics: provide a visual, explanation, examples

Assignment Parts/Timelines

1. Know the concept/skill to teach
2. To Do list and task allocation: Due: Nov 23 by end of class submitted to D2L
3. Demo understanding of sorting method to teacher: Nov 24 (in class)
4. One (1) page note-taking template: to teacher on Nov 25th on D2L
5. Activity: Due: Nov 25th on D2L
6. Rehearse for presentation. Nov 25th : Timeline, allocate roles, rehearse.
7. Presentations (15 – 20 minutes): start on Nov 26th
8. Each group will assess their classmates understanding based on the activity submission. A class list will be provided so that it can be recorded.

Topic Sign-up

- Please sign-up for one of the sorting algorithms on the following Google Doc:

  https://docs.google.com/document/d/1j_9p2l2va2g90VgfAWv7PxSMvhoXoSen4kr_pdd9CEI/edit?usp=sharing

Rubric

	Level 1	Level 2	Level 3	Level 4
Knowledge /10	0 2 4 6	6 6.5 7	7 7.5 8	8 9 10
Understanding of assigned topic: sorting algorithm, number of passes, comparisons, attributes, compare/contrast, Big-O, etc. Uses correct terminology	Provides limited details about the assigned topic. Limited components of the assignment were complete.	Provides some details about the assigned topic using correct terminology in explanations. Some of components of the assignment were completed.	Provides most of the details about the assigned topic using correct terminology in explanations. Most of the components of the assignment were completed.	Provides all key details about the assigned topic using the correct terminology in explanations. All components of the assignment were completed.
Thinking /10	0 2 4 6	6 6.5 7	7 7.5 8	8 9 10
Presentation well planned and thought out: agenda, resources, activities, handout, etc. Discrimination of pertinent information. Checks for understanding	Presentation, agenda, resources, activities, handout, etc. were planned and executed with limited effectiveness. The information presented needed more refinement, content, and understanding. Presenter does not check for understanding.	Presentation, agenda, resources, activities, handout, etc. were somewhat thought out, planned, and executed. The information presented needed more refinement. Presenter checks for understanding at some point during presentation.	Presentation, agenda, resources, activities, handout, etc. were thought out, planned, and executed. The information was thoughtfully selected and presented. Presenter checks for understanding more than once during presentation.	Presentation, agenda, resources, activities, handout, etc. were well thought out, planned, and executed. The information was thoughtfully selected and presented effectively. Presenter checks for understanding throughout the presentation.
Communication /10	0 2 4 6	6 6.5 7	7 7.5 8	8 9 10
Clear and Precise Descriptions Confidence, use of voice, visuals, clear descriptions/explanations. Presentation was effective	Communicates information poorly and/or lacks visuals. Concepts lack explanations. Formatting makes it difficult to read material.	Communicates information with the aid of some visuals. Explains some concepts. Formatting has been carefully planned to complement the content. It is a little hard to ready at times.	Communicates information well, with the aid of visuals. Explains most concepts using appropriate technological terms for the audience. Formatting has been carefully planned to enhance readability.	Communicates information very well, with the aid of visuals. Explains all concepts using appropriate technological terms for the audience. Formatting is excellent, varied, and carefully planned to enhance readability and content.
Application /10	0 2 4 6	6 6.5 7	7 7.5 8	8 9 10
Demonstrates understanding through sharing algorithm, code, and examples. Handout Design Student Activities	Limited effectiveness in the presentation of algorithm, code and examples. Handout included some important aspects of the topic. Class activity was absent and/or required more thought.	Somewhat well-presented algorithm, code and examples. Handout included most important aspects of the topic. Class activity required more thought.	Well-presented algorithm, code and examples. Handout had good design and included important aspects of the topic. Good class activity.	Very well presented algorithm, code and examples. Handout was well designed and included all important aspects of the topic. Excellent class activity.