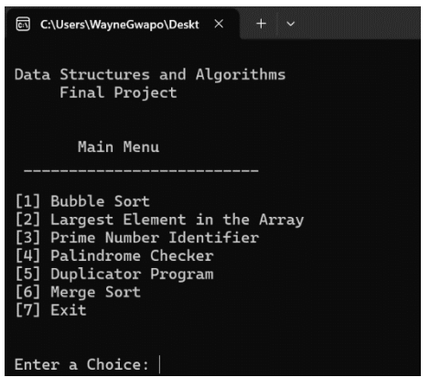
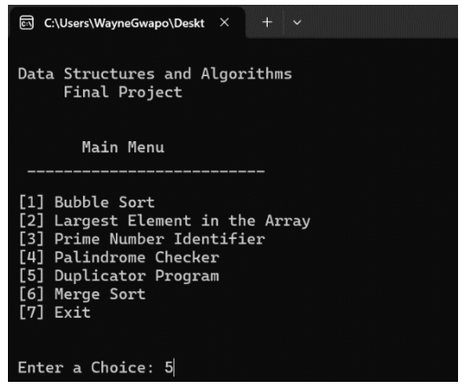
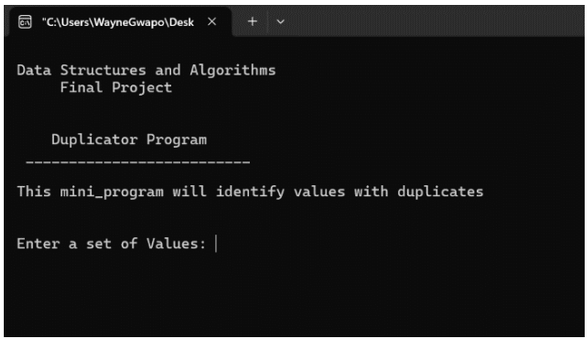
BS INFORMATION TECHNOLOGY
ITEDST – DATA STRUCTURES AND ALGORITHMS
FINAL PROJECT

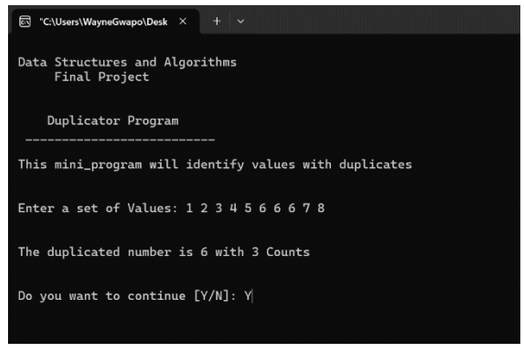
1. Group yourselves into Four (4) members (*current groupings*)
2. Familiarize yourselves again by using the three basic programming Languages: **C, C++ and Java**.
3. In doing so, you may code and run the following problems below using the **three programming languages and also indicate what platform** (e.g. Code:Blocks, Coding C, VS Code, etc.).
4. **In order to have a uniform running time, a constant number of data is given to be entered by the user. The enclosed numbers are your constant number of inputs.**
    a. Bubble Sort (n=10). Show the elements *per pass*
    b. Finding the Largest Element in the Array (n = 10)
    c. Prime Number Identifier (n = 10)
    d. Palindrome Checker (n = 10) as ***characters in a string***
    e. Duplicator Program (n= 10)
    f. Merge Sort (n=10)

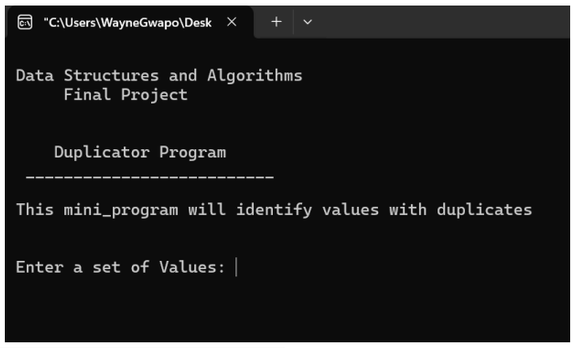
Note: The programs above must be in a menu-based structure. Implement basic error-trapping techniques. I will provide the set of programs you will code since you are only required to do 3 (*See the listing on page 4*). Use the following format below:

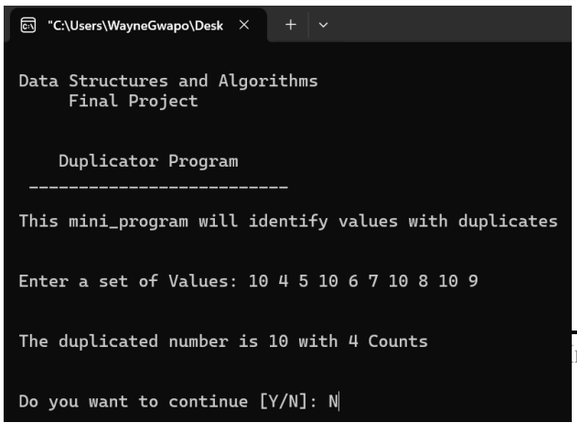


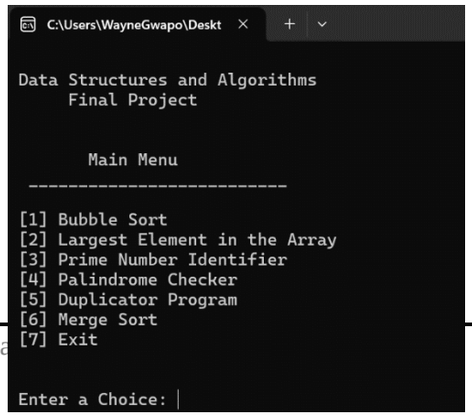


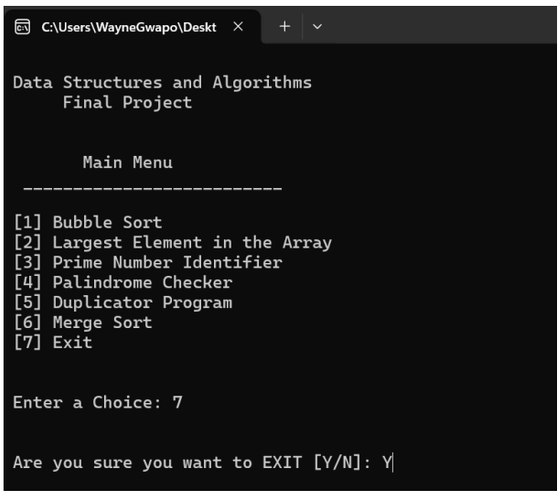


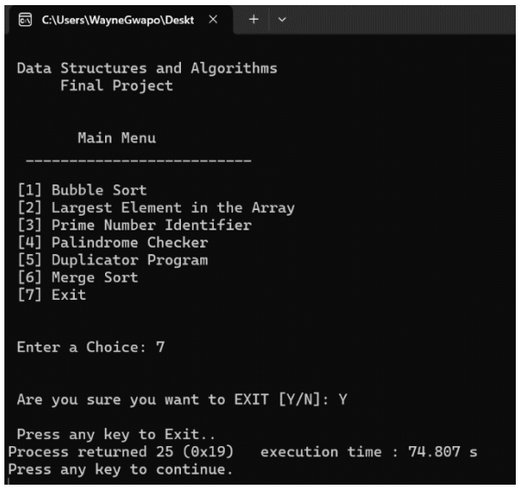












5. By having the code of the following programs, run and compare the following in terms of programming efficiency by filling up the chart. Please include your codes in your submission (*as assigned per group*).

Name of Program	P. Language	Number of Lines (Code)	Execution Time (ms)
1. Bubble Sort	C		
	C++		
	Java		
2. Array Largest Element	C		
	C++		
	Java		
3. Prime Numbers	C		
	C++		
	Java		
4. Palindrome Checker	C		
	C++		
	Java		
5. Duplicator	C		
	C++		
	Java		
6. Merge Sort	C		
	C++		
	Java		

6. Indicate what hardware did you implement your codes (e.g. Desktop, Laptop, Mobile Phones; Choose two (2) only) and what are your hardware specifications to indicate the efficiency of your codes. Base on the hardware attributes below:

Desktop Computer	**Laptop Computer**	**Mobile Phone**
Model	Model	Model
Processor	Processor	Processor
RAM	RAM	RAM
HDD	HDD	HDD
Video Card	Video Card	Video Card

7. Results and Discussion. Among the **three languages (*C, C++, Java*)**, which do you think is the most efficient and why? Explain your findings

Program Name	P. Language and Platform	Findings
Bubble Sort		
Array Largest Element		
Prime Numbers		
Palindrome Checker		
Duplicator		
Merge Sort		

8. Please provide screenshots of your outputs per program and include the source codes of it.

9. Date of submission **must be on or before January 16, 2025**. Print your outputs according to the format given above together with all the source codes in a short size bond paper and place it in a blue short size folder (carton) with slide clip.

10. A short group presentation will be conducted per teams. Study and familiarize the codes, algorithms and methods you used. I will select randomly a member to represent the group to answer some questions. A percentage of it will be taken for your project grade.

Good luck and see you again this January 6, 2025.

Advance Happy New Year to everyone !

WAYNE CUSTER G. ALEGATA, PhD – DvM
Associate Professor 1
ITEDST Subject Professor

December 29, 2024 4:24 pm

List of Programs per Group

Set 1 (Members _____)

1. Bubble Sort
2. Largest Element
3. Prime Number

Set 2 **(Members _____)**

1. Palindrome
2. Duplicator
3. Merge Sort

Set 3 **(Members _____)**

1. Bubble Sort
2. Palindrome
3. Prime Numbers

Set 4 **(Members _____)**

1. Largest Element
2. Duplicator
3. Prime Number

Set 5 **(Members _____)**

1. Prime Numbers
2. Bubble Sort
3. Palindrome

Set 6 **(Members _____)**

1. Duplicator
2. Largest Element
3. Bubble Sort

Set 7 **(Members _____)**

1. Merge Sort
2. Bubble Sort
3. Prime Number

Set 8 **(Members _____)**

1. Largest Element
2. Palindrome
3. Duplicator

Set 9 **(Members _____)**

1. Prime Number
2. Palindrome
3. Duplicator

Set 10 **(Members _____)**

1. Palindrome
2. Bubble Sort
3. Merge Sort

Set 11 **(Members _____)**

1. Largest Element
2. Bubble Sort
3. Prime Number

Set 12 **(Members _____)**

1. Palindrome
2. Largest Element
3. Prime Number

Note: Class Mayor, please do the draw lots in order to assign a specific SET of programs per group.

Thanks!

Good luck class!