Cairo University
Faculty of Engineering
Computer Engineering Department
Spring 2022

Data Structures and Algorithms Project Phase 1 Report

Team Name: ΥΜΥ

Number of members: 3

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Members' Info:

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Professor Supervisor: Dr. Ahmed Hamdy

Teacher Assistants Supervisor:

Eng. Eman Hossam

Eng. Marwa Mahmoud

Project Data Structures:

List Name	Chosen DS	Justification
Waiting VIP Cargos	Priority Queue	**-** Because there is priority for arranging cargos depending on an eq based on cost & Distance & Prep. Time.
Container of cargos in truck		**-** Because there is priority for arranging cargos depending on Cargo Delivery Time.
Loading trucks		- Because there is priority for arranging trucks depending on maximum cargo loading time.
Moving trucks		- Because there is priority for arranging trucks depending on total travel time of the truck.
———		Enqueue = O(n) Dequeue = O(1) Peek = O(1) Is Empty = O(1) Destroy= O(n) Print = O(n)
Waiting Normal Cargos	Linked List	- Needs random access when cancelling or promoting. Insert = O(1) Remove = O(1) Search = O(n) Is Empty = O(1) Destroy= O(n) Print = O(n)
Event List Waiting Special Cargos Delivered Cargos Empty Normal truck Empty Special truck Empty VIP truck Checkup Normal truck Checkup Special truck Checkup VIP truck	Queue	- Because it is based on the principal FIFO Enqueue = O(1) Dequeue = O(1) Peek = O(1) Is Empty = O(1) Destroy= O(n) Print = O(n)

Workload distribution:

Phase2 Item	Relative points	DONE !
Handling off-hours	2	TRUE
Handling Loading Rule	3	TRUE
Maximum Wait Rule (MaxW)	2	TRUE
LOAD VIP cargos	3	TRUE
Handling Pri equation for VIP	0.5	TRUE
LOAD special cargos	1	TRUE
LOAD normal cargos	2	TRUE
Promote norm cargo	2	TRUE
Auto Promotion	2	TRUE
Cancel norm cargo	2	TRUE
Trucks avail to loading	2	TRUE
MOVE a truck	2	TRUE
Deliver cargos	4	TRUE
Truck Moving to avail	2	TRUE
Trucks Moving to Checkup	2	TRUE
Trucks Check to Avail	2	TRUE
Calls UI class functions to print details on the output screen	4	TRUE
3interface modes	1	TRUE
O/P file lines (at the end of simulation)	4	TRUE
O/P file statistics	1	TRUE
Prepare test cases	1	TRUE
Phase2 Report	0.5	TRUE
Bonus:: Night Shifts	1.4	TRUE
Bonus:: Speed & Capacity	1.4	TRUE
Bonus:: Irregular Maintainence	1.4	TRUE
Bouns:: Delivery Failure	2.8	TRUE

	يوسف ربيع
	محمود صبحي
	يوسف حجاج

NOTE: Distribution of the workload according to the distribution attached in the project file and does not mean how tired the team members are in this project because there are things that were not mentioned such as testing, research, helping the rest of the team and contributing to modifying each other's codes in case there is any error anywhere in the code.

We have created a webpage with code documentation that you can view [here](#) and created Pdf code documentation that you can view [here](#)