



Fayoum University
Faculty of Computers & Information
Second Term 2019/2020

Course Name: Data Structure

Course Code: INF 270

Course Level: 2

Course Dr. Name: Shereen A. Hussien

Status: Pass Not Pass:

Before you begin working on your course research point, you must submit a formal report. The report is meant to help you crystallize the details of your research point and focus your energies on producing a high quality final paper. Researches should be 7 to 10 pages. The research will be performed individual and will be submitted as PDF file. **Please feel free to add more functions or features (reading/writing from file or graphical interface) and don't forget to support the report with screenshots of your code.** The document must look professional and its first page as in the attached Research_cover page file. The research should have the following sections:

- **Abstract.** The abstract should summarize the entire research in one paragraph. State a problem, the general solution technique, the expected complications, the solution to those complications, and the nature of the evaluation that you will conduct. (It's usually easiest to write the abstract after you have finished everything else.)
- **Introduction.** Give a short introduction to the topic in your own words. Give a short example of why this topic is difficult or interesting. Briefly state the problem that you wish to solve.
- **Context.** Once you have laid out the background, describe exactly what you intend to accomplish. Clearly state the detailed information that addresses the problem stated in the introduction. Discuss the related papers that are most relevant to what you are doing.
- **Conclusion.** Is the last part of your research. You always end by summing up your arguments and drawing a *conclusion* about what you've been done in your research.
- **References.** Are the lists of resources that are used to help you in completing your research.

Research Content	Font: Times New Roman, Font Size: 12
Research Title	Font: Times New Roman, Font Size: 14, Bold
Paper Size	A4

Choose one of the following topics for your research:-

Topic 1: Bank Management System

This system is focused on customer account services in bank. So, you can create a new account, update information of an existing account, view and manage transactions which stored in the customer account, transfer amounts between accounts, check the details of an existing account, remove existing account and view customers' list. Listed below some functions must be included in your project, the main ones use linked list and others use the appropriate data structure with at least one stack and one queue:-

- **New ()** – Create a new customer account with some details of the customer such as name, date of birth, citizenship number, address and phone number.
 - **View ()** – view the customer's information provided while creating the account.
 - **Edit ()** – Change the address and phone number of a particular customer account.
 - **Delete ()** – Delete a customer account.
 - **Deposit ()** – Deposit money to a particular customer account.
 - **Withdraw ()** – Withdraw money from a particular customer account.
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- **Commit ()** – Apply changes on the account balance based on 24 hours transactions.
 - **Transfer ()** – Transfer money from particular customer account to another.
 - **Latest Transacts ()** – Display the 5 most recent account transactions.

Topic 2: Hospital Management System

This system is focused on patient records in hospital which contains multiple clinics of different specialties. So, you can perform functions such as add, edit, search, display, delete, list records and archive patient records based on date. Listed below some functions must be included in your project, the main ones use linked list and others use the appropriate data structure with at least one stack and one queue:-

- **Add Clinic ()** – Add a new clinic with id, specialty, fees and opening date.
 - **Set Appointment ()** – Reserve patient record information with name, address, age, sex; disease description and specialist clinic to be referred are available.
 - **Cancel Appointment ()** – Delete the record of any patient.
 - **Display Clinic ()** – List the available clinic in a particular date
 - **Search Specialty ()** – Search for clinic of specific specialty.
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- **Click Income ()** – Compute the total paid fees for each clinic.
 - **Transfer Clinic ()** – Transfer patient from one specialty to another.
 - **Organize Records ()** – Archive the patient's records from newest to oldest.

Topic 3: E-Commerce Management System

This system is focused on shopping operations services online. So, you can perform functions such as view, sort and filter products based on factors like price, brand etc., also determine the most seller items so check the inventory about its availability and handle the waiting process if it is not available. Listed below some functions must be included in your project, the main ones use linked list and others use the appropriate data structure with at least one stack and one queue:-

- **Add Item ()** –Add a new item with id, brand, amount and price.
 - **Update Price ()** – Update price value for specific item.
 - **Delete Item ()** –Delete the item from the site.
 - **Display Items ()** – List items ordered by price factor
 - **Search Item ()** –Search for item based on specific brand
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- **Purchase ()** – Order an item based on the availability amounts in inventory.
 - **Seller amount ()** – Compute sales percentage of a product.
 - **Latest Items ()** – Display the 10 most recent purchased items.

Topic 4: Travel Agency Management System

This system is focused on traveler services. So, you can add a new trip, update information of an existing travel trip, view and search for a particular travel trip, check the details of an existing trip, remove existing trip and view travelers' list. Listed below some functions must be included in your project, the main ones use linked list and others use the appropriate data structure with at least one stack and one queue:-

- **Add Trip ()** –Add a new trip with id, location, passenger limit, date and price.
 - **Edit Trip ()** – Change the details for a particular trip.
 - **Delete Trip ()** –Delete the trip from the schedule.
 - **View Trips ()** – List trips ordered by date factor.
 - **Search Trip ()** –Search for trip based on a specific price.
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- **Reserve ()** – Reserve a trip for a customer based of the trip limit.
 - **Discount ()** – Offer 20% discount on the trips with price greater than 10000 LE.
 - **Latest trips ()** – Display the 10 most recent trips for the agency.

Topic 5: Library Management System

This system is focused on book-related operations like in a REAL library which contains multiple departments/sections of different fields. So, you can perform functions such as add books, return books, issue books, delete record of books issued, view record of books issued, search for books, and more. Listed below some functions must be included in your project, the main ones use linked list and others use the appropriate data structure with at least one stack and one queue:-

- **Add Section ()** –Add a new section with id , number of books and field.
 - **Borrow Book ()** –Create a borrowing book record with id, title, amount and publishing date information.
 - **Return Book ()** –Delete the record of the borrowing book.
 - **Display Books ()** – List the available books based on publishing date.
 - **Search Field ()** –Search for section of specific field.
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- **Borrowed Books ()** – Calculate the total borrowed books for each section.
 - **Transfer Section ()** – Transfer book from one field to another.
 - **Arrange Records ()** –Organize the book borrowing's records from newest to oldest.

- يختار الطالب احد الموضوعات عاليه لاجراء مقالة بحثية
- يكتب البحث الكترونياً ويرسل كملف واحد بصيغة PDF على البريد الالكتروني لاستاذ المقرر عاليه على ان يسمى الملف وكذلك موضوع البريد الالكتروني باسم الطالب ثلاثي والمقرر.
- سيتم رفض البحوث المتشابهة جزئيا او كليا ويعتبر الطلاب المتقدمون بها راسبين في هذه المادة الموضوعات المطروحة هي لما تم تدريسه سواء عن بعد او قبل تعليق الدراسة.
- يتم تسليم الأبحاث في الفترة من الاحد 2020/5/31 حتي الأثنين 2020/6/8.