



## File Management and Processing (IS321)

Academic Year 2024/2025

### Assignment I

- ❖ In this assignment you will implement a simple Healthcare management system in which an administrator of the system can search for all appointments of a particular doctor. Also, the administrator could add a doctor, delete a doctor, add an appointment and delete an appointment record.
- ❖ First, we want to store data about patient medical **records** and **appointments** (*for simplicity assume that each doctor can have many appointments and the appointment is handled by only one doctor*).
- ❖ We want to store 5 doctors and 10 appointments.
- ❖ Save the data for doctors and appointments in the following format: **delimited fields and length indicator record**.
- ❖ Consider the following specifications for the fields of each record in both the doctors and appointments data files:

Doctors Data file
Char Doctor ID [15] //primary key
Char Doctor Name [30]
Char Address [30]

Appointments Data file
Char Appointment ID [15] //primary key
Char Appointment Date [30]
Char Doctor ID [15] // secondary key

- ❖ Please consider building the following indexes:
  - Primary index using the Doctor ID (for Doctors data file).
  - Primary index using the Appointment ID (for Appointments data file).
  - Secondary index using the Doctor ID (for the Appointments data file).
  - Secondary index using the Doctor Name (for the Doctors data file).
- ❖ Implement add, update and delete functions. Make sure that consider the following situations in your design:
  - When you add a record, first look at the AVAIL LIST, then write the record. If there is a record available in the AVAIL LIST, write the record to a record AVAIL LIST points and make appropriate changes on the AVAIL LIST.
  - If the record to be added already exists, do not write that record to the file.
  - When you delete a record, do not physically delete the record from file, just put a marker (\*) on the file and make appropriate changes on AVAIL LIST.
  - If the record to be deleted does not exist, display a warning message on the screen.
  - For the update function, make updates to non-key fields only. Also, updates to these fields will not exceed the allocated size.
  - *Note: all add and delete operations will affect indexes.*



- ❖ Implement search operations. Make sure to consider the following:
  - Search operations will use indexes (primary or secondary).
  - All indexes are sorted ascending.
  - Searching in indexes is performed using Binary search.
  - Bind all secondary indexes with the primary index, don't bind them by addresses directly.
  - You must implement secondary indexes using linked list technique.
- ❖ The user can write a query that contains specific key words (formatted in red below). Some examples of user queries are as follows:
  - **Select all from Doctors where** Doctor ID='xxx'; // this query will use primary index to get the results
  - **Select all from Appointments where** Doctor ID='xxx'; // this query will use secondary index to get the results.
  - **Select Doctor Name from Doctors where** Doctor ID='xxx'; // this query will use secondary index to get the results.
- ❖ The main welcome screen is below

- ❖ Add New Doctor
  - ❖ Add New Appointment
  - ❖ Update Doctor Name (Doctor ID)
  - ❖ Update Appointment Date (Appointment ID)
  - ❖ Delete Appointment (Appointment ID)
  - ❖ Delete Doctor (Doctor ID)
  - ❖ Print Doctor Info (Doctor ID)
  - ❖ Print Appointment Info (Appointment ID)
  - ❖ Write Query
  - ❖ Exit
- ❖ **Important Rules:**
  - The deadline for this assignment is: During the week beginning 7\_12\_2023
  - You are required to form a group of **5 students** from the same lab or with the same TA.
  - Cheating will be penalized with **negative points**.
  - **All team members** will be discussed.
  - **NO** late submission is accepted.
  - Attach a cover page with the assignment file contains the students' names, IDs and Group numbers.
  - The assignment file should be named as: LeaderID\_TAname\_Assignment I.
  - Only the team member will submit the assignment.
  - **The weight of this assignment is 10 points.**