GROUP PROJECT (full marks: 25)

Choose **only one** of the following options (1 - 3)

Deadline for submission: ~~**31st October 2021**~~
15th November 2021

1. **Library system**:

   Design an interactive library system in C programming language. It should have two modes of access (i) Admin and (ii) User. There should be unique login ids for each. The system should ask for the login id and check it against a list. The admin and user ids for a person should be different. A person without a valid id should not be allowed to access the library. An Admin should typically be the librarian (or others responsible for the library). Users can be students or faculty members.

   The allowed operations for each of these modes are:
   Admin: Addition, deletion and updation of book records
   User: Acquiring and returning of books

   Each book should have a unique id, number of copies available, title, author, publisher etc. Each issue of a book should be recorded as well. The number of days for which a book can be borrowed should be dependent on the availability (more number of days for the books with a higher number of copies available). Also, there should be an upper limit on the number of books one can acquire at the same time. Books with less than 3 copies should be issued only to faculty members.

   The system should have an interactive interface. It should show the current status of the availability and assign books accordingly. It should also take back books. The library database should be updated accordingly. It should also give the aforementioned rights to the admin.

   In addition, a search facility should be present for both these modes allowing free-text search in general and also for specific fields of a book.

2. **Flight reservation system:**

   Design an interactive flight reservation system in C programming language. The customer should be able to choose a flight from a calendar through a unique customer id and see the availability of tickets. Each customer should be given three options for a

ticket: infant, child and adult, with different prices. After the customer chooses the booking options, the system should generate the final ticket amount.

It should have two modes of access (i) Admin and (ii) User. The allowed operations for each of these modes are:

Admin: Make modifications in flight details
User: Booking

There should be unique login ids for each. The system should ask for the login id and check it against a list. The admin and user ids for a person should be different. A person without a valid id should not be allowed to access the system. An Admin should be one related to the airport/airlines authorities. Users are the customers.

Each flight should have a unique id, availability, timing, source, destination etc.

In addition, a search facility should be present for both these modes allowing free-text search in general and also for specific fields of a flight.

3. **Online e-commerce system (e.g. Flipkart, Amazon etc.):**

Design an interactive e-commerce system in C Programming language. The system should display the current stock of the products (each product should have a unique id), allow the customer to choose them in a cart and generate the total bill. There should be an option for take-away/collect-from-store or home-delivery. For home-delivery, the system should ask for the address (from a list), preferred timing of delivery (from a list) and check whether a delivery van is available (or else inform the customer that delivery will be delayed). The customer should get the appropriate details of the online delivery in the final bill.

It should have two modes of access (i) Admin and (ii) User. The allowed operations for each of these modes are:
Admin: Addition, deletion and updation of products
User: Buying of products

There should be unique login ids for each. The system should ask for the login id and check it against a list. The admin and user ids for a person should be different. A person without a valid id should not be allowed to access the system. An Admin should be from the e-commerce authorities, users are the customers.

In addition, a search facility should be present for both these modes.

Evaluation:

Total marks: 25

10 marks - logical and syntactic correctness
5 marks - programming excellence (efficient logic and using the relevant advanced concepts discussed in the class till the deadline e.g. file operation, pointers, advanced data structures etc.)
5 marks - documentation (text/audio/video) -- in the code and user manual
5 marks - presentation, aesthetics, user-friendliness, innovation etc.

Instructions:

- There should be ONE submission per group. The code with appropriate documentation (a separate sheet) should be uploaded to WeLearn (in a zipped folder) by the group representative through his/her login. **The documentation should contain information about what the code is about, how to run it, example runs, the system requirement (e.g. OS).**
- After submission, the group representative should send an email to the instructor with all the remaining members of the group in CC stating the Group id, Names and WeLearn ID Numbers of all the group members and the number of the problem attempted. All the members of the group will be allotted marks separately.
- Though the submission is group-wise, the evaluation will be individual-wise. It is mandatory to modularize the whole assignment project into sub-tasks (modules) and distribute them to the group members. Each group member should be responsible for one/more modules. **Each module should be the responsibility of one member (to be mentioned in the documentation)**. There can't be a group member with no responsibility. E.g. in problem 1, there can be modules like searching, updation, deletion, interface design etc. **The modularization should be described in the documentation with the allocation of responsibilities to the group members.** However, the modularization is irrelevant for a group comprising a single student.
- The group members who are responsible for more modules or the majority of the implementations will be eligible for more marks. Like in a paper, the member names should appear in the decreasing order of contributions in the report.

- In addition to uploading the assignment to WeLearn, each group should present their work. **The assignment marks will not be awarded to the groups (and individuals) not presenting.**
- The students not belonging to any group will not get any marks.