CSE471
Assignment 03

1. The Bangladesh government is planning for an E-voting system to cast the votes of every citizen of the country at the exact time with appropriate results. Following is the initial proposal of it.

   Every voter first inputs their NID number and Fingerprint into the system. Verify identity process receives this data and compares the NID with existing data from the NID data store. It also extracts the existing fingerprint from the data store and forwards it to compare fingerprint along with new fingerprint (i.e. given by the citizen). The process uses Neural Network technique and sends back the match result. Based on the result, the verify identity process sends Invalid fingerprint messages to the voter. The show candidate process collects the list of all candidates from the candidate data store and sends it to the voter. Voter then chooses his/her favorite candidate and the casting vote process receives it and stores it in the votes. It also sends an acknowledgement to the voter.

   Administrators can request total voting information to generate reports. It collects all voting information from the Votes data store, prepares a report and sends it to the administrator. At the end, the admin can declare the election result. There is also the presiding officer who can send start/stop signals to the voting status process. He can also pause the voting system in case of any emergency. Another responsibility of the presiding office is to add new candidates into the system.

   a. Design a context diagram based on the above scenario.
   b. Design a level 1 diagram using the above scenario. Also, identify if there is any error in the diagram.

2. BRACU-Scheduler is a program tasked with staff scheduling and weekly roster creation. Create schedule module first receives a task type flag from the Monitor roster module by providing the current roster status information. Based on the flag, Create schedule can either initiate a regular scheduling or a CP-solver by taking into account the staff requests. Generate regular schedule module first retrieves the employees on duty for next week from the Fetch employee module. In order to generate this employee list, Fetch employee module uses Get employee module which is a library module and Resolve calendar conflict module in the order they are mentioned and they return employee list and filtered employee list based on vacation notice, respectively. Until the final roster is created for all employees, Generate regular schedule calls upon the Assign Employee module with details of each employee and receives an assignment data. It then sends this data to Update roster module and receives updated roster. Finally, finished roster is passed onto the Dispatch roster module which is an on-page connector. On the other hand, Create schedule uses a Initiate CP-solver module to generate schedules with staff requests which is an off-page connector. **Draw a structure chart based on the above information.**