

# Department of Computer Science and Engineering

## CSE471: System Analysis and Design

### Summer 2023

### Assignment 4

**Deadline: 24 August, 2023**

**Total Marks: 10**

1. BRACU-Crawler is a pilot project designed to crawl BD sites only. First, Initiate crawler module provides current status of URL queue to the Schedule policy module and receives policy map and crawling threshold number. Until a threshold reached flag is received from the Fetch URL module, Crawler receives a link from Fetch URL module. It then retrieves a new page by providing page link to the Fetch site page module. This page is then sent to the Extract URL module and it returns a set of newly extracted links to the Crawler. In order to do that, Extract URL module first generates raw links using Parse raw links module and sends those to the Filter Valid links module. Filter valid links module returns only the URLs that Crawler should crawl in the future. After receiving the filtered links, Extract URL module formats the links using a library module called Format link and finally sends these filtered-formatted links to the Crawler. Based on the policy map, Crawler can either add the links to the Update URL queue module which is an off-page connector or dispatch to the Reschedule policy module which is an on-page connector. **Draw a structure chart based on the above information. (5 marks)**

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. (5 marks)**