Home Work 2

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Question 2: Identify functional and nonfunctional requirements from the following description

Answer:
We have refined follow requirements from the description.

- **The allocation of staff to production lines should be mostly automated.**
  - Functional requirement
    - It describe a requirement of allocation of staff, if it cannot mostly automated allocate the staff to the production line, the staff in production planning(system operator) will have to do it himself. It is a interaction between user and system. So it is a functional requirement.

- **A process will be run once a week to carry out the allocation**.
  - Nonfunctional requirement
    - Performance

- **Process based on the skills and experience of operatives.**
  - Functional requirement
    - It is what customer asked the allocation system developer to realize. And it is the rule to carry out the allocation.

- **Details of holidays and sick leave will also be taken into account.**
  - Functional requirement
    - It is what customer asked the allocation system developer to realize. And it is also the rule to carry out the allocation.

- **A first draft allocation list will be printed off by 12.00 noon on Friday for the following week.**
  - Nonfunctional requirement
    - Performance, time associate.

- **Only staff in production planning will be able to amend the automatic allocation to find-tune the list**.
  - Functional requirement
    - It reflects only certificate user could operate the allocation system. It is

something about interaction between user and system.

- **Final Allocation list is printed out by 5.00 pm**.
  - Nonfunctional requirement
    - Performance, time associate.

- **The system must be able to handle allocation of 100 operatives at present**.
  - Nonfunctional requirement
    - Performance

- **The system should be capable of expansion to handle double that number.**
  - Nonfunctional requirement
    - Performance

Question 4: Consider an Academic Payroll System for a University:

There is a need to develop a new Academic Payroll (AP) system for a university. A university employs full-time and casual (contractual) academics. Employees in the Personnel Department will use the system to maintain employee information, manage leave, and make payments to the academics every fortnight. The AP system can add new employees and delete employees. It can manage annual and long-service leave as well as record any sick leave. The system must pay each academic the correct amount, on time, and by the payment method requested by an academic.

Employees in the Personnel Department will access system via a Windows-based desktop interface. However, the system will also provide a web-based access to full-time academics (called Academic Kiosk) to view their payment details, leave balances, and personal information. Some of this information, such as personal details and payment method, can be updated by academics using the web-based interface.

Academics are paid every fortnight on Wednesday. Full-time academics are paid a flat salary. Casual academics work by the hour and they are paid an hourly rate. Casual academics submit timecards that show the dates and hours worked for a particular contract number. The AP system verifies if the total hours worked so far do not exceed the number of hours agreed in the contract. The contract information is maintained by another system called Contracts Management; however the AP system stores basic information about contracts, in particular hourly rate for each contract.

Casual academics have no leave entitlements. The university deducts standard tax rates from payments made to full-time academics, but casual academics may elect to have no tax deductions taken by the university.

Casual academics can request receiving payment notifications by mail or by email. Full-time academics do not receive payment notifications but they can use Academic Kiosk to query the system about fortnightly payments, total salaries received year-to-date, tax and other deductions, leave balances, etc. As mentioned, Academic Kiosk can be used to modify personal details and payment method

1. Identify few actors (at least 2) and their scenarios (at least 1 for each actor) and identify use cases for the problem (at least 02 use cases). These use cases should be presented as textual description (see p. 163)

Answer:

Actors:

- Employees in the Personnel Department
  - Manager of AP system
- Full-time academics
  - View payment details, leave balances, and personal information; update personal details and payment method.
- Casual academics
  - Submit timecard to AP system, receive notification from AP system(if required)
- The University
  - Deducts standard tax rates from payments made to full-time academics.

Scenario:

UpdateAddressAndCheckPayment: (John: FullTimeAcademic)

John is a full time academic. One Wednesday night, he accesses AP system via Academic Kiosk, he updates his address, for he has just moved to a new address. After that, he checks his payment state, and wants to see if the university paid him this fortnight.

AddNewCasualacademic: (Tom: EmployeeInPersonnelDepartment)

Tom is an employee in personnel department. University got some new casual academics. He accesses AP system via a windows based desktop interface to add these new casual academics to database.

Name	MaintainFullTimeAcademicsInformation
Participating Actors	Initiated by EmployeesInThePersonnelDepartment(EPD for short) Maintain FullTimeAcademics(FA for short)
Flow of events	1. EPD operators AP system and chooses to maintain FullTimeAcademics information. 2. System redirect to maintain FullTimeAcademics' Information window. 3. EPD enter the key word to search a FA. 4. System search FA with the key word. If it matches some of the FA in database, system shows the FA which match the key word (maybe more than one). Ask EPD to choose one of FA to display information. 5. Otherwise, if no matched FA, system go back to start of search step and asks EPD to enter a new key word. 6. EPD chooses one of FA to show his/her information. 7. System shows the FA's information. 8. EPD edit the FA's information and upload to system. 9. System saves the latest data and notifies FA that his/her information has already updated. 10. System shows information update successful and asks EPD if he want to search a new FA or exit MaintainFullTimeAcademicsInformation mode. 11. EPD choose to search a new FA. 12. Otherwise EPD finds that all FA's information is up-to-date and exit MaintainFullTimeAcademicsInformation mode. 13. System goes back to start of search step. 14. Otherwise system exit MaintainFullTimeAcademicsInformation mode.
Entry Condition	● EPD login to AP system
Exit Conditions	● ALL FAs' information are up-to-date.
Quality Requirements	● FA can receive the information update notification and communicate with EPD if the FA found any information that have just been updated are wrong.

2. Extend of the identified use cases with exceptions handling

3. Describe of non-functional requirements