**FEDERAL UNIVERSITY OF TECHNOLOGY MINNA**

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**DEPARTMENT OF MECHATRONICS ENGINEERING**

**MCE 312: COMPUTER PROGRAMMING AND LANGUAGES**

**Group Project:**

1. **Design an Electrical Billing System**

* Each customer has meter number; address; and name
* Customer can buy and use wattage
* Customer should get warning message (email) when 80% of their wattage has been consumed
* Customer can download out their statement of account

1. **Design a Supermarket store management APP**

* Items can be added in bulk using excel or notepad
  + Each items has id; name; quantity and price
* Items can be edited
* Daily account balancing
* Supermarket owner can download daily, weekly or monthly account statement

1. **Design a flight Management APP**

* Update information of airplanes in the airport
  + Airplane has id; name; sit capacity
  + There are different class on the plan, with varying price
* Keep record of inflow and outflow of airplane
* Display all airplane in the airport with their status
  + Status such as loading; on air; idle; set to take-off
  + Expected time of arrival for all airplane except those idle

1. **Design a Function-graph generator APP**

* Create a dynamic APP to plot graph of popular functions
* Functions to generate are: impulse function, sinc function, delta dirac, logistic sigmoid, rectified linear unit, pulse-width functions
* If user does not specify data to plot, plot with random numbers
* User can specify data to plot

1. **Design an election management system**

* Download Polling Unit information from INEC site
* Use it to build an election management
* Election collation starts from polling unit and reflects in local government, state and national
* The election result can be viewed by local government, state and national
* The result can be downloaded as CSV or Excel format

1. **Design a multi-choice question electronic-based examination management system**

* Your system should work like e-exam system
* Courses have course code; course name
* Questions are randomly selected from pool of questions submitted by lecturers
* Student’s mark can be downloaded

1. **Design a library circulation management system**

* Books have id; title and field (e.g. physics, Mechatronics, Electrical engineering etc)
  + Make sure to use standard library management referencing and indexing style
* Books should be displayed by their fields with their shelf number (row and column)
  + Status of the book: available; unavailable or borrowed should be displayed
* Books can be borrowed from the library
  + The status of the book should change accordingly
  + Return time should be indicated
* Reminder email should be sent to borrower

1. **Design Student Registration Portal**

* Student has full name; phone number; email address, residential address; state of origin
* Student can upload their credentials to the portal
* Student’s credential should be arranged in folders

NOTE:

1. Deadline for submission of your algorithm (flowchart or pseudo-code) is 11:59pm 14th of April, 2019. Expected format .docx or .pdf
2. To get full mark, you should simulate your app with random data and implemented with at least 2 of the taught programming language (C++, MATLAB or Python)