Object Oriented Programming

DBIT

END OF SEMESTER PROJECT

- Be creative and outgoing. Give flexibility to your program. Make sure that the user makes choices on where to go next or when to exit.

- Your windows MUST HAVE the following buttons

    o Submit/save (to send data from the form to the database)

    o Delete (to delete an item from the database. Note that an Item should not be literally deleted. It should be tagged so that when a tag is there, it appears as deleted)

    o Cancel (to reset transaction just done. This means that before committing to the database, the application must seek from the user a confirmation)

    o Update (This should enable modification of records in a database. Note that there should be some fields that MUST NOT BE MODIFIED e.g. the Unique Keys such as the Primary keys as well the ensure referential integrity)

    o Close (you will be required to disable the close button at the right corner of your window/form and create a button that can be used to close the form). This close button should only close the form and not the whole application.

    NOTE

    This will greatly be dome via SQL statements i.e. Insert, Delete and Update. Compound statements will be of importance especially the WHERE clause, The JOIN clause and Nested QSL statement will make your work supper.

- Ensure you have normalized your database to keep the data collected from the user and for future reporting

- Ensure that the applications handle errors as appropriate. E.g. where the user is supposed to key in an integer, prevent him/her from keying in a character etc. (Error handling)

- Control structures are very useful and important in this application. Take your time to think and analyse what you feel is better to use as opposed to another

TASK

Write a program that can be used in an Armed Forces Recruitment Exercise in a county. The program should be as clear as possible with all logical considerations taken. The following are the system requirements.

There are **varied numbers of districts** per county that will use the system and each district has a **unique number of posts for either** all or some of the **categories available**. These details are supplied first for they are going to be used later on. You can ask the *Administrator the number of categories that are available* (e.g. army, navy, air-force etc.) and pre-enter them for each district during district creation at the county level. The assumption here is that the **recruitment point is just one per district**. However, you can be creative and make your own assumptions.

- For instance, the program will need to ask the user to supply the names of Districts that the system will be used in together with usernames and passwords that each district should use.
- The district users should log in to their module and consequently load their features for instance the district name and county name.

1. The application should be used to record the counties that the system will be used in for the same exercise. If the county is not registered, no user can be registered under that county

2. The user should be able to log into the system (on login, the application should determine the county in which the user is registered)

3. The first event is for the candidates to run a total distance of 4 KMs. A candidate must be able to cover 4 km in less than 30min. If however the candidate can cover the same distance within 30-45min, they will be grouped aside awaiting consideration whenever a specific (defined) number would not have been realized in the first condition (of 30min). (**Note that the less the number of minutes used above 30 minutes, the higher the chances of being considered. i.e. a candidate who arrived 31st minute has higher chances as opposed to the one arriving 45th minute**.) These minutes should be recorded.

4. For every post, collect the following information about the candidate

- Surname, Other Names, National ID number, Date Of Birth, Gender, Height, Weight, Number Of Teeth, Status Of Feet (i.e. flat or curved), General Body Status, and Highest Academic Qualification

5. Calculate the age of the candidate for decision making.
   a. The candidate should be aged between 18 and 32 years of Age
   b. If the candidate has between 32-35, s/he can be considered only if the education qualifications are above B plain average with a University degree

6. The gender policy must be adhered to, i.e. at **least 30% must be of either gender**. So at every point or recruitment (final stage), before committing, the system should determine the gender policy.

7. To be recruited, one needs to be at least a certain height tall. This Height can be defined earlier in the system. It is your choice. E.g. you can have a table with qualifications of different categories and in different gender

8. One should not be more than 65kg. This weight can also be defined together with point number 7 above for different categories

9. An ideal candidate should have 32 teeth. (If they are missing up to 3 teeth, they lose 1 point from his education qualifications points. If they are missing more than 3 teeth, then they are dismissed.)

10. If a candidate weighs 50-60kg, they are considered for the army. Else if the candidate weighs 60-65kg, he is considered for the air force. However, is the candidate weighs less than 40kg he is dismissed. However weighing 60-67 will be allowed but lose 1 point from his education qualifications points

11. If a candidate has flat feet or any unnatural mark on the body he/she is dismissed.

12. On qualification:

   o If the candidate has a Postgraduate degree (Masters and above), consider him/her an officer. Each degree academic award above high school gives the following points as outlined

     - Diploma   3 points
     - Bachelor's Degree   6 points
     - Masters' degree   9 points
     - PhD degree   15 points

   o If the candidate has just a degree he can be an officer only if s/he has additional education qualifications such as a diploma in addition.

o If just the candidate has just KCSE, consider the candidate for the following positions

- C+ and above can join Air force
- D+ and above can join Army (Les than that, need to be dismissed)
- To join Air force or Navy, one need to have done Physics and Maths and scored at least B+ in each
- To join army one needs to have scored at least C plain in English or Kiswahili.

o The candidate needs 39 points and above

13. Academic qualification points for high school graduates add up to a maximum of 84. Each subject carries a maximum of 12 pints in the range of:

GRADE	POINTS
A	12
A-	11
B+	10
B	09
B-	08
C+	07
C	06
C-	05
D+	04
D	03
D-	02
E	01

14. Prepare relevant reports including:

- A list of all candidates in the test after running
- Successful candidates list in each category
- Unsuccessful candidates list in each category
- In each category, sort the candidate names in the order of ascending grades scored

- For each successful candidate, collect the following details for their next of kin: Name, Gender, Mobile contact, Email address, Relationship, ID number