CSE446: Project on Ethereum

Submission Deadline: **6th April, 2024**

Patient Management

Imagine it is the year 2020 and the world is suffering from the covid-19. In this situation, you are assigned to design a system for maintaining **patient data** and find the **trend** of the covid-19.

Requirements:

You have to introduce the following features in your system.
There will be two types of users: **1. Admin 2. Patient**

1. **Add patient data:** **20%**
   You should have a form, from where both admin and also patients themselves can register into the system. Data should hold ***id, age, gender, vaccine_status, district, symptoms_details, is_dead.*** These are the information at least **required for a patient**. You can add more attributes if you think necessary. **Hint**: there is another attribute which can be helpful. Think what that is.

2. **Data Update:** **20%**
   The system should also have a form, from which only **Admin,** can update the ***vaccine_status*** and ***is_dead*** property of a particular patient. The ***vaccine_status*** property will hold only values **not_vaccinated**, **one_dose**, **two_dose.** The ***is_dead*** property should hold only **boolean** value**.** If the Admin enters any wrong value other than these the data will not get updated.

3. **Covid Trend Table:** **7.5 * 4 = 30%**
   You should show a table, where any user can see
   - **a.** The average death rate per day combined all the district
   - **b.** The district with highest covid patient
   - c. The median age of covid patients in each district.
   - **d.** Percentage of Children, Teenage, Young and Elder patients. We are considering:
     Children < 13 years
     13 years =< Teenagers < 20 years
     20 =< Young < 50
     50 =< Elder

4. **Certificate:** **10%**
   Only patients who received two_dose of vaccine can download only their own vaccine certificate. *You can just show some text in the browser to mimic the certificate. No pdf file is required to download*. **10**

5. **Update Data Automatically:** **20%**
   When admin **updates** patient's ***is_dead*** status, the death rate from the question 3a of the covid trend table should reflect it automatically. **20**

Formula to calculate Median,

Median = $\left(\frac{n+1}{2} \right)$ th term of X, if n is odd and

Median = **value of** $\left(\frac{\frac{n}{2} \, th \, term \, of \, X + \left(\frac{n}{2} + 1 \right) th \, term \, of \, X}{2} \right)$, if n is even

For example: In Dhaka, there are 5 patients of age: 25 yr, 29 yr, 30yr, 15yr, 30yr. So, the sorted age of patients in Dhaka will be ,
Ordered list, X = 15, 25, 29, 30, 30 or 30, 30, 29, 25, 15
n = 5 (number of patients in a district)

Therefore, Median =(5 + 1) /2 th term of X
= 6/2 th term of X
= 3rd term of X
Therefore, the 3rd term of X is 29 and this is the median age.

NOTE:

1. ***You cannot use any database e.g. mongodb, mysql etc. All the data must be stored via smart contract.***
2. ***You must use Ganache and truffle for the development.***
3. ***For frontend, you can use raw javascript like we did in the lab. if you already have experience in framework/libraries such as reactjs, angularJs, vuejs, you can use them. If you want, you can take help from the lab files also. But remember, All the data must be stored and updated via smart contract.***
4. ***Focus on the features, don't waste time on designing a good looking user interface. There are no additional marks for the design part.***
5. ***For updating the data automatically without refreshing from frontend, you need to utilize smart contract (solidity).***