**[DIGITAL ELECTION COMMISSION OF PAKISTAN]**

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1. **Acknowledgment**

Most of the project has been covered under the programming concepts taught in the classes. Although, to increase the attraction, and efficiency at some points in the program, few built-in/ helper functions were used from the internet. No specific website has been favored in our searches- the one with the best idea has been adopted. These websites include stack overflow, geeksforgeeks, and tutorials point. The ideas taken from internet are: Filing is - used in verification of email, and voter’s ID, time function to print result, random function, and password mask function. I would also like to so thank our instructor Sir Zain who always supported us with prompt replies through email and discussions and tried to resolve our errors.

1. **Introduction**

* **What is Digital election commission of Pakistan?**

It is an organization that is seeking to replace the election commission of Pakistan and its main objective is to digitalize the voting system in Pakistan. As we know, the physical voting system requires a lot of physical work and a large number of participants who are obliged to perform different tasks such as setting up the ballot boxes, making sure that no one in any way is misusing their power to manipulate the votes etc. This procedure is not only costly but also requires a redundant amount of effort and has many glaring issues. An electronic voting system can help to solve all of these issues.

**Pros:**

* There will be little to no need of participants and labor, this will help to reduce costs and expenses substantially.
* Only a little physical effort will be needed in the procedure as the software will handle almost everything.
* Cheating will become more difficult as the software won’t allow a single person to vote twice and won’t allow cheaters to tamper with votes of other citizens.

**Cons:**

* The software could be vulnerable to viruses/malware and security bypasses/hacking. However, these threats can be dealt with secure encryption and cyber security.
* Also, in the case where electronic voting machines are used, the lack of a paper trail for recounts and auditing during a power outage can be disrupting

**2. Tools and technologies used**

**IDES USED:**

Visual Studio Code, Dev C++ (Language Standard ISO C++ 11)

**LIBRARIES:**

* #include<iostream>
* #include<conio.h>
* #include<string>
* #include<fstream>

**BASIC OOP CONCEPTS USED:**

* Encapsulation
* Inheritance
* Filing
* Setter/getter
* Access specifier
* Static variable
* Friend class/ function

**5. FUTURE WORK**

There are many uses of a digital election system in Pakistan. Everything will be modernized as software’s and machines will do all of the work. USA and many developed countries have already taken major steps in this regard and it has saved a lot of revenue and expenses in due course. There will be no room for cheating as long as the software’s are secure and well encrypted, this will remove the element of corruption within the voting system and reduce fear of the wrong person being elected within the voters. Results will be calculated and displayed within no time and this proves that the system is efficient. Other aspects such as complaints the voters may have and queries can be addressed by the software itself which means that no participants will be needed and this will further reduce costs.

**3.CLASS DIAGRAM**

**CLASS VARIABLE**

-m, n, o, p, id, arr[5] int

-q, name, contact, email, address, postal code, nic, passport : string

**CLASS ADMIN**

-a\_name, password string

-c char

-Flag int

+void setname()

Class about

+displayabout()

Class wardinfo

+setcity()

+setarea()

+checkward()

**CLASS contactdetails**

**+**setname()

+setcontact()

+setmail()

+setadress()

CLASS media\_dec

+media\_dec()

Class misc

+cont\_decp

Class voter

+forlocal()

+forforeigner()

Class votecast

+filing()

Class intro

+introduction()

**5. CHALLENGES AND DISCUSSIONS:**

The implementation of verification steps was the biggest challenge that we faced. We had to make sure that the voter was 18+ or not. If he was, he was then asked if he was a foreigner or local. If he was a foreigner, we would ask him to enter his passport number and it was then verified by NADRA and he was asked to enter his voter ID as well. If he was a local, his NIC would be asked and voter ID as well. Implementing a 2-step verification and making sure that a voter could only vote once was also challenging. If the limit of ID’s registered in an NIC were crossed, the program would stop there.

Another big challenge was that we had to make sure that the voter/user could not view the results as it would be against the law. This was implemented in the following way:

• We only authorized the admin to see the results and only allow him to enter a password.

• The problem was that when the admin was entering the password, it was coming up on the command prompt which would render the password aspect as useless. Hence, it was difficult to solve this issue.

• This problem was solved by replacing the show password function with steric key.