About Power Grid

The **Power Grid Corporation of India Limited (POWERGRID),** is an Indian state-owned electric utilities company headquartered in Gurugram, India. POWERGRID transmits about 50% of the total power generated in India on its transmission network. Its former subsidiary company, Power System Operation Corporation Limited (POSOCO) handles power management for National Grid and all state transmission utilities.

It is also a “Navratna” Central Public Sector Enterprise.

Power Grid also boasts strong human capital of around 9500 working professionals. Today POWERGRID can boast of having the best talent in transmission sector and grid management. POWERGRID’s human capital comprises of talented professionals broadly in the field of Engineering (Electrical, Electronics, Telecom, Information Technology, Civil, Mechanical, Industrial Engg.), Management (Finance & Accounts, Human Resources), Legal, & Public Relations selected through open competition on All India basis and from the Premiere Technology & Management Institutes of the Country. Since commencement of commercial operation in 1992, POWERGRID is almost regularly inducting fresh talent in form of Executive Trainees (ET) on all India basis.

At POWERGRID, we believe learning is a continual process. POWERGRID spends time, money and resources for all employees in order to help them grow as professionals and utilise their potential.

HR in POWERGRID has not only ensured that a robust acquisition and development process is in place but it also lays emphasis on creating a Performance Orientated Culture and improving the Quality of Work Life. POWERGRID believes in employee empowerment. Even the lowest rank of employee is allowed to

involve in the highest decision making process through PNBC (Powergrid National Bipartite Committee). Open House, Video Conferencing, E-Suggestions, skip level meetings and overall transparent approach ensures smooth flow of information from top to bottom and vice versa.

Today POWERGRID is creating India's Tomorrow. Every day in POWERGRID is a new day, a day with New Challenges, with New Opportunities. Opportunities to Learn, Ideate, Innovate, Involve, Execute and Lead. As our dedicated workforce gives more time to the organisation, at HR POWERGRID, it's our continuous endeavour to create a workplace which is full of fun as well as intellectually challenging. All our townships have sports club, recreation centres, children play area, library etc. for our employees and their family members. We also organise various sports & cultural competitions/ events annually both at intra-regional as well as inter regional level apart from celebrating POWERGRID Raising Day on 23 October, Holi, Diwali, Independence day, Republic Day & other events where employees and their family members participate & celebrate.

Introduction

Online survey portal for Employees of Power Grid to gain the knowledge of the Employees regarding Grievance System in the Company.

Due to the gravity of the topic, anonymity of the employees is the top-most priority to get true and unbiased results, hence made the survey in such a way which does not collect any identifiable information from the employees. It not only helps with keeping the personal identity of respondent (employees in this case) safe but also helps the surveyor to have access to all the responses in one place.

This portal is developed using several technologies such as HTML, CSS, jQuery for the frontend part and ASP.NET Core for the backend.

HTML stands for HyperText Markup Language which is a standard markup language for documents designed to be displayed in a web browser. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.
CSS stands for Cascading Style Sheets which is used for describing the presentation of a document written in a markup language like HTML. CSS is the cornerstone technology for world wide web, alongside HTML and Javascript.
jQuery is a Javascript library designed to simplify HTML DOM tree traversal and manipulation, as well as event handling, CSS animation, and Ajax.
ASP.NET Core (framework used at Power Grid for its website) is a free and open-source web framework, and higher performance than ASP.NET.

Objective

Objective of this Online Survey is to help both Surveyor and Respondent in terms of both time and effort. Power Grid Corporation of India Limited provides an special portal for all of its employees which has a constantly updated notice panel, link to the survey portal will be displayed in notice panel of all the employees which needs to fill the survey in the ESS Portal, making it easier to access for employees as this portal is something which they access several times daily.

This online survey also makes it easier for surveyor to keep the track of all the responses, and to reduces the time to conduct the whole survey greatly while still maintaining the anonymity of the respondent.

Existing System

Before this online survey portal, HR Department used to take offline surveys, which had to be printed on paper then personally distribute the surveys to each and every employee then again collecting the survey response from each employee. It was a tedious and very time consuming task.

Limitations

- **Time Consuming** – This old approach to conduct surveys was very slow.

- **Response was not so Anonymous** – Sometimes, respondents does not wish to share their identity with the surveyor for several reasons, as old approach included different people, there was a chance to get biased responses.

Proposed System

This online survey portal has made the process of conducting the surveys very easy for both surveyor and respondent, as it will be connected with the existing technology, that respondents are used to, i.e., ESS Portal for employees of Power Grid.

Benefits

- **Saves Time & Effort –** As surveys can be send to all the employees with just a one click and respondents can reply simultaneously, which results in lots of time savings.

- **Unbiased Responses –** As surveyor is not contacting respondent directly and whole survey maintains anonymity of the respondent, respondent can give unbiased survey response without any hesitation, leading to more successful survey.

- **Easy access to whole data –** After all the responses are submitted by the respondents, surveyor can easily access all the responses as whole data is stored and compiled in one place.

Hardware Used

- macOS 10.14.5
- Intel 2.3GHz core i5 Processor

Software Used

- **Microsoft Visual Studio Code** – to make the survey form
- **Microsoft Visual Studio for Mac** – to convert the survey form into an ASP.NET Core Project
- **Google Chrome** – to check the compatibility with chrome as well as used developer tools provided by Google Chrome for debugging
- **Safari Browser** – to check the compatibility with safari browser for mac users
- **Git & Github** – used Git to keep the track of changes & Github to access the code anywhere.
- **Terminal** – used for Git on Command Line.
- **Adobe XD CC 2019** – used to design the first prototype of the survey design.
- **stackoverflow.com** – helped with a lot of queries whenever got stuck, whole stackoverflow community is very helpful.
- **w3schools.com** – used to gain knowledge of how to use several tags and their properties in HTML5.

Tech Stack Used And Learning Outcomes

Tech Stack is total technologies used in the development of the project from the beginning to the end.

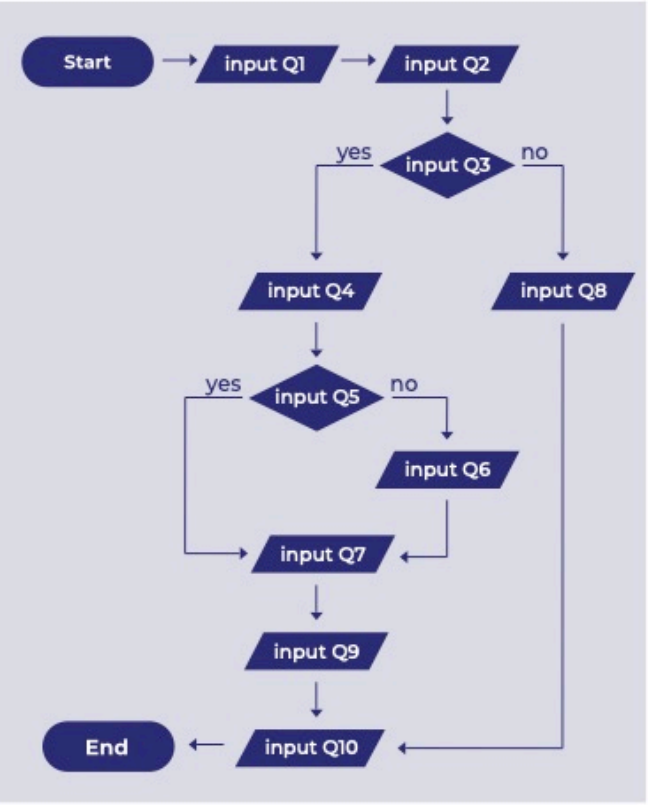
1. **UI / UX Design**
    - Principles of UI (Structure, Simplicity, Visibility, Feedback, Tolerance, Reuse)
    - Principles of UX (Hierarchy, Consistency, Confirmation, User Control, Accessibility)

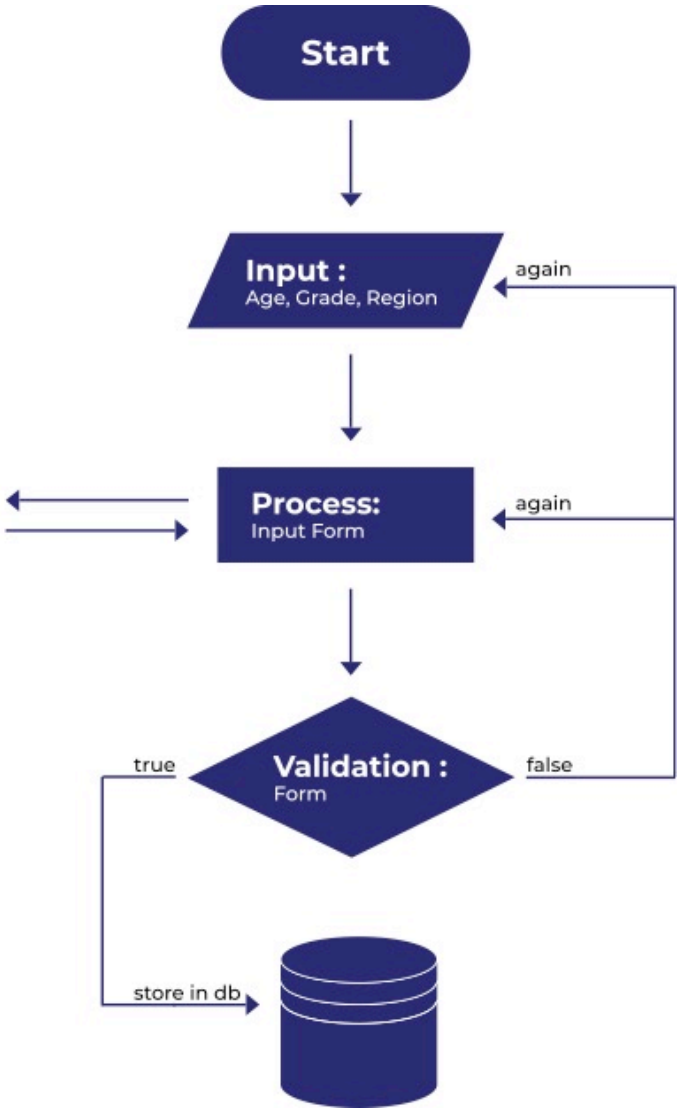
2. **HTML**
    - Basic Concept (www & HTTP, HTTPS, Client Server Communication)
    - Basic HTML (Tags, Elements, Attributes, Paragraphs, Headings, Line Breaks, Lists, Color Codes, Font Selection, Background, Comments)
    - HTML Forms (Input, Text Fields, Checkbox, Combo Box, Radio Buttons, Text Areas, Buttons)
    - HTML5 Features

3. **CSS**
    - Basic CSS (Selector, Internal Styling, External Styling, Inline Styling, Class, ID, Background, Font Family, Padding, Margin, Hovering)
    - Advance CSS (Border Radius, Opacity, Cursor, Layers, Position, Display, Float)
    - Concept of Menus (Single Menu, Drop Down Menu)
    - Template, design using CSS div tag.

4. **jQuery**
    - Basic jQuery (Syntax, Operators, Variables, Events, Alerts)
    - Advance jQuery (DOM (Data Object Model) Manipulation, Regular Expression, addClass, removeClass)

Flowchart


Start
input Q1
input Q2
yes
input Q3
no
input Q4
input Q8
yes
input Q5
no
input Q6
input Q7
input Q9
End
input Q10


Start
Input :
Age, Grade, Region
again
Process:
Input Form
again
true
Validation :
Form
false
store in db

About project

This online survey is basically a form, where a respondent first have to enter his/her age just to bifurcate the responses by age groups (e.g. 30-40, 40-50, 50-60 etc.). Then they have to select their Grade and Region.
After filling and selecting the above data, they are directly move towards the actual survey questions. Survey is divided into 10 Questions of either YES/NO type or Multi-answer questions or Multiple Choice Questions, in addition to that they can also submit their own answer in few questions if they do not think any of the given options describe their situation best.

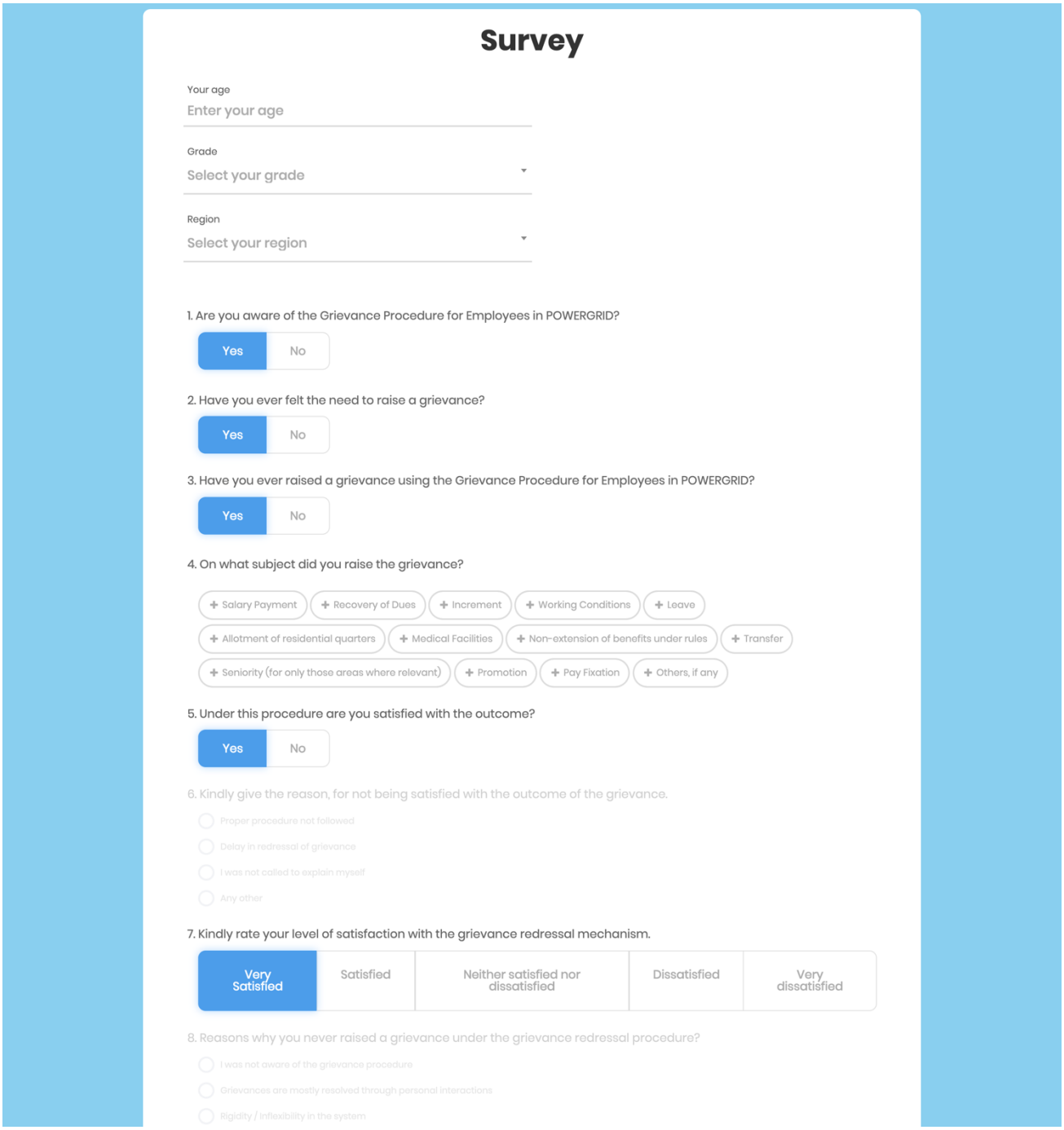
It is a smart survey form, meaning few of the questions are connected, e.g. Under the grievance procedure are you satisfied with the outcome? And next question is; Reason, for not being satisfied with the outcome. So let's say if the respondent is actually satisfied with the outcome he/she does not have to answer the next question which asks why are you not satisfied. In this survey, several questions automatically enable and disable according to the situation.

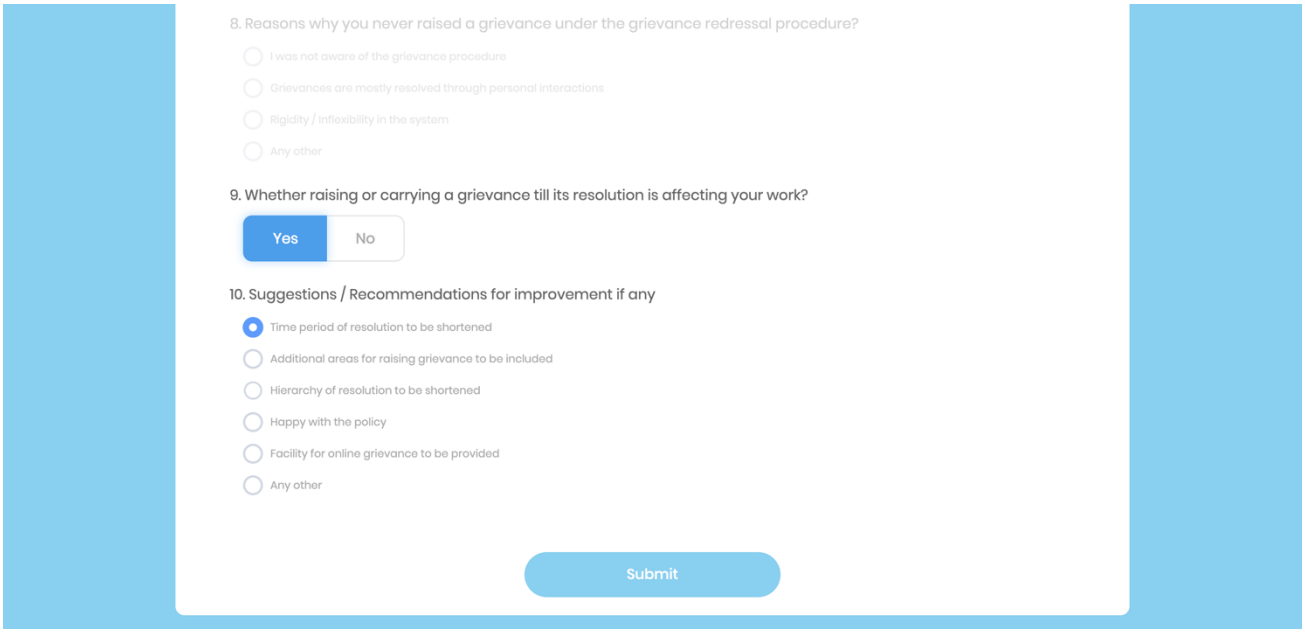
As per the plan, this survey will be displayed in the notice sections in the ESS Portal of all the employees who needs to fill the survey. Survey will be available for a specific period of time after which it will be automatically removed from the notice sections. After all the responses are received it will be compiled in an excel sheet from which graphs will be plotted.

This project does not have any dependencies meaning respondent does not have to install anything additional to see or interact with the survey portal, they can directly access it through the URL.

For the sake of good experience, design of the survey is kept to very clean and minimal with good use of typefaces (fonts), and attention to detail have been given in very small areas, with little animations which actually makes the user experience very friendly.

Snapshots of the UI




8. Reasons why you never raised a grievance under the grievance redressal procedure?
I was not aware of the grievance procedure
Grievances are mostly resolved through personal interactions
Rigidity / inflexibility in the system
Any other
9. Whether raising or carrying a grievance till its resolution is affecting your work?
Yes
No
10. Suggestions / Recommendations for improvement if any
Time period of resolution to be shortened
Additional areas for raising grievance to be included
Hierarchy of resolution to be shortened
Happy with the policy
Facility for online grievance to be provided
Any other
Submit

Problems Occurred while development

There are more problems to create when working with CSS. It is very easy but sometimes results does not match with the expectations. Web designing is not an easy task, it takes a lot of creativity, uniqueness and brainstorming sessions to come up with a nice web design. Only a web designer can tell about the challenge they go through on regular basis. Web designs which are liked and appreciated by clients are mostly the result of constant development and regressive critical thinking. Website's sync with multiple apps along with its ability to be responsive so that website looks good on any screen size, be it phone, tablet, or desktop are just a few factors which are pondered by the web designer. This makes web designing a challenging role.
In addition to this, there are some other challengers which are faced by web designers. These challenges are about keeping a website responsive enough so that it can be viewed and accessed on all devices of different screen sizes. Sometimes websites take time to load, so in order to provide a better user experience (UX), one of the toughest challenges for web designers is to make website load faster.

While development I personally faced these issues, buttons were out of alignment, making site responsive, text were not following hierarchy, icons used in website took time to load. Also, due to working on macOS, had to work on Microsoft Visual Studio for Mac to develop ASP.NET Core Project, which does not provide an option to work on databases directly like Visual Studio for Windows do provide.

During the period of internship, I learned clean code reduces unexpected errors, which can affect page load time. Also, sometimes while adding additional features old code stops working, in these situations a version control software like Git can save a lot of hassle of re-writing the old working code.

Conclusion

The current work is the initial background report for the website development project. This report aims to provide a critical review of the relevant literature in the web field and also to describe key aspects of the methodology that was applied throughout the project. This report tries to examine various issues that arise while building a website. It is important to highlight, that websites are not simple software artefacts. Mastering the necessary software skills and tools to build a website does not guarantee its success. For this reason, this report focuses on many other challenges that come up through the development process, like making website responsive, reducing the loading time of the site.

As a conclusion, I can say that this internship was a great experience. Thanks to this project, I acquired deeper knowledge concerning my technical skills of HTML/CSS and also rather than using Javascript which I already knew I learnt something new, i.e., jQuery.

Project Source Code is also available at:
https://github.com/DefinitelyNotAnmol/Power-Grid

It is available in two versions, one plain HTML/CSs version and another embedded in ASP.NET Core Framework