**CSR and ESG project to empower local communities**

**Existing systems:** Namma School, Indian CSR

**Existing CSR flows:**

1. On demand pre-planned project -> Interested individual (Can be rich, NGO bodies, Corporate etc…) donate for welfare through public sites to handler(Mostly corporate, Sometimes government) -> Raise fund -> Assign peoples manually -> Organization do welfare on funds -> Post proof of welfare done
2. NGO’s visit to public -> Public requests -> Requests are consulted in a meeting between supporting bodies manually -> Plan project -> Raise fund -> Assign peoples manually -> Post proof of welfare done
3. Surveys &meetings with weaker recognition -> Public requests -> Requests are analyzed manually (Excel) -> Plan project -> Raise fund -> Assign peoples manually -> Track projects manually (MS Project) -> Post proof & statistics of welfare done with progress

**Existing functional features:**

1. 3rd party survey systems
2. 3rd party project management systems
3. Website to collect fund and show proof & statistics of projects

**Drawbacks in existing system:**

1. Improper website implementation (Difficult for people to access websites in mobiles)
2. Manual project selection
3. Manual team consultations and project planning
4. Basic data analysis on completed projects

**These flows and methods are time consuming, involves a lot of manual activities, sometimes doesn’t cover most of the needs, Various 3rd party softwares doesn’t integrate with each other, Chance of errors**

**Reference:**

1. Tata Steels CSR
2. Infosys CSR
3. Indian CSR
4. Paper mostly involved DA techniques from surveys alone

**Proposed System:** ImpactOne

**Proposed functional features:** An All-in-one application with,

1. Survey Management:
   1. Create, Update, Delete, Share survey forms to get the requests from the local communities or from the organization itself with specific domain based on appropriate ESG principles -  **MERNS Web App**
   2. Self-filled surveys from group meetings and programs from public or the organization itself- **MERNS Web App**
   3. Advertise Surveys with help of other bodies (NGO’s, Government, Corporates, Volunteers) through Social Media , Live Interactions, Emails & phone nos - **Real time analysis with Apache Kafka and hadoop**
   4. Use Machine learning algorithms and Natural Language Processing techniques to conclude the requests with project topic, location and other details - **NLP which included SpaCy Tokenization, Word2Vec Vectorization, RoBERT Embeddings, Top2Vec Topic modeling, HDBSCAN Clustering, DistilBERT Sentient Analysis, MCDA ranking, Ploty Visualization based on frequency and sentiment**
   5. Conduct feedback surveys on projects done from public -  **MERNS Web App**
   6. Use Machine learning algorithms and Natural Language Processing techniques to conclude the feedback - **NLP which included SpaCy Tokenization, Word2Vec Vectorization, RoBERT Embeddings, Top2Vec Topic modeling, HDBSCAN Clustering, DistilBERT Sentient Analysis, MCDA ranking, Ploty Visualization based on frequency and sentiment**
   7. Supports both Tamil and English - **API**
2. Project Management:
   1. Project planning features - **MERNS Web App**
   2. Project tracking and management features - **Real time analysis with Apache Kafka and hadoop**
   3. Budget planner - **Regression Models**
3. Fund Management:
   1. Display of projects and collect interests - **MERNS Web App**
   2. Fund collection - **API**
   3. Fund tracking - **Real time analysis with Apache Kafka and hadoop**
4. Team and Time Management:
   1. Make meetings between bodies - **MERNS Web App**
   2. Recruit Volunteers - **MERNS Web App**
   3. Assign team and members for project - **MERNS Web App**
   4. Time scheduler for every other activities - **MERNS Web App**
   5. Track these activities - **Real time analysis with Apache Kafka and hadoop**
5. Report and Proof Visualization:
   1. Before vs After records of individual projects - **Real time analysis with Apache Kafka and hadoop**
   2. Complete project records on location wise - **Real time analysis with Apache Kafka and hadoop**
   3. Complete project records on domain wise - **Real time analysis with Apache Kafka and hadoop**
   4. Feedback records - **Real time analysis with Apache Kafka and hadoop**
6. Locker:
   1. Personal Details of all individuals - **MERNS Web App**
   2. More detailed documents and reports - **MERNS Web App**
   3. Other records - **MERNS Web App**
7. Individual Panels:
   1. Individual panels for,
      1. Admins (Corporate) -  **All process**
      2. Volunteers and Project Teams - **Do projects**
      3. Fund raisers and Interested people - **Show Interests**
      4. Public - **Make requests**
      5. Government - **Overview and Control**
8. Security Features:
   1. HTTPS with SSL Security
   2. Token and Open Authentication
   3. CSRF Management
   4. Secure DBMS practices
9. Optional Features:
   1. Chat Application Integration - **MERNS WebSocket App**
   2. Supporting Chat Bot - **NLP**

**Proposed non-functional features:**

1. Responsive UI/UX
2. Accuracy
3. Scalability
4. Consistency
5. Interoperability

**Proposed CSR flow:**

1. Planning the release of survey -> Advertising the survey -> Creation of survey -> Finalization of Survey -> Circulating Survey

-> Public Requests on based on domain -> Plan meeting - > Conclude projects through meetings -> Conclude projects through surveys -> Plan project -> Frame budget -> Post projects -> Promote -> Collect interests -> Raise funds -> Recruit volunteers

-> Allocate teams -> Schedule project -> Start project -> Complete project -> Post proofs -> Update records as before vs after -> Circulate and check feedbacks -> Create complete report

1. Conduct meetings whenever wanted and track all activities

**Proposed ESG policies and domains:**

1. Environmental Policies:
2. Climate Change Mitigation: Carbon footprint reduction, renewable energy adoption, and emission reduction targets.
3. Resource Management: Efficient use of water and energy, waste management and recycling, and sustainable sourcing of materials.
4. Pollution Control: Reducing air and water pollution and minimizing hazardous waste.
5. Biodiversity and Conservation: Protecting ecosystems and wildlife, and promoting sustainable land use and development.
6. Environmental Impact Assessment: Conducting assessments before major projects and mitigating negative environmental impacts.
7. Social Policies:
8. Labor Practices: Fair wages and benefits, safe working conditions, and upholding workers’ rights and non-discrimination.
9. Community Engagement: Supporting local communities and investing in social programs and initiatives.
10. Human Rights: Addressing human rights violations and ensuring ethical supply chains.
11. Diversity and Inclusion: Promoting workplace diversity and ensuring equal opportunities for all employees.
12. Customer Relations: Ensuring data privacy and protection, and practicing ethical marketing and customer service.
13. Governance Policies:
14. Corporate Governance: Board composition and independence, executive compensation and performance, and anti-corruption measures.
15. Transparency and Reporting: Regular ESG reporting and disclosures, and compliance with regulatory requirements.
16. Risk Management: Identifying and managing ESG-related risks, and implementing internal controls and audit processes.
17. Stakeholder Engagement: Engaging with investors, customers, and other stakeholders, and addressing their concerns and feedback.
18. Ethical Business Practices: Code of conduct for employees and management, and anti-bribery and anti-corruption policies.

**Why these technologies:**

1. MongoDB and MySQL hybrid approach for DBMS:
   1. MySQL is used in storing highly related, referenced data like user personal details, team personal details, interested peoples, company metadata which are normalized avoiding data redundancy and data which needs transactional features with ACID properties like records of transactions made, teams created, projects status and the main point is all these data posses a fixed schema and doesn’t posses high read/write rate leading to a chance of no need of scaling
   2. MongoDB is used in storing data which doesn’t require transactional features rather posses faster read/write rate sacrificing data redundancy but most of the time these redundancies can also be avoided due to the hybrid approach like survey results which are often written by users and read by ML models so the requests handled by the server would be so high supporting horizontal scaling (sharding) and data which have a highly flexible schema like the project structure and details, allocated team members
2. Node and Express TS:
   1. Node TS provides a rich set of packages meant for development and production and also providing base features to create servers for websockets working as a base for express framework
   2. Express TS is one of the best framework used to built REST APIs which has a list of features handling HTTP requests asynchronously, providing rich middleware support and larger community support
3. React TS:
   1. React TS is based on the Single Page Application (SPA) technology which is much faster, lightweight when compared to other regular development practices and it is a library which paves way for integrating other libraries like react-dom, react-form, react-router-dom, react-spring easily
4. NLP for survey and feedback processing:
   1. SpaCy is chosen to break text into individual token and it is highly fast and accurate than other techniques like NLTK
   2. Word2Vec converts words to vectors and it captures semantic meanings efficiently than BERT embedding
   3. RoBERT Embedding forms contextualized word embedding which is accurate than BERT
   4. Top2Vec identifies topic by topic modelling which is efficient than LDA
   5. HDBSCAN clusters data points which is highly efficient in handling noises as NLP has more anomalies than K-Mean clustering
   6. DistilBERT for sentimental analysis which is faster better than BERT and VADER
   7. MCDA for ranking the topics based on sentiments and frequency
   8. Plotly for visualization which is better than matplotlib
5. Apache Kafka and Hadoop:
   1. Data analysis techniques like descriptive analysis, time series analysis are performed where kafka and hadoop stands first in scalability, high throughput low latency
6. NLP Chatbot -> ?