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Team Name	Boraa and Co.
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Product Category	AI-based web application



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PROBLEM DEFINITION AND PROPOSED SOLUTION OVERVIEW

Problem Definition and Solution Overview

In the domain of political campaign strategy, the challenge lies in strategically placing candidates to secure polling divisions for a political party. This involves analyzing various factors such as historical election results, demographics, campaign strategies, and candidate profiles to predict the likelihood of winning in different constituencies. The significance of this problem is paramount for political parties as winning parliament seats directly impacts their ability to influence policy-making and governance.

The proposed solution involves leveraging machine learning techniques to analyze relevant data and predict the most strategic placement of candidates to maximize the party's chances of winning parliament seats. By collecting and preprocessing data on historical election outcomes, demographics, and campaign strategies, the model can identify patterns and factors influencing electoral success. Through model selection, training, and evaluation, the solution aims to develop accurate predictive models that can inform decision-making in candidate placement.

Problem Scope

Multiple scopes are to be addressed hence the domain is vast, hence the problem scope encompasses several aspects:

The problem focuses on a specific geographic region where the political party operates, typically the entire island or districts, and regions. And also a limitation we may come across is that this model might not be ideal for all types of elections. Specifically we target Parliamentary General Elections, yet the data driven model might be helpful and insightful for other elections as well. The historic data spanning past election cycles within the chosen geographical scope. However, it may also involve forecasting future election outcomes based on historical trends and current data. The problem of data scope arises when collecting and analyzing

various types of data relevant to political campaigns and elections, including but not limited to election results, demographics, socio-economic indicators, candidate profiles, and campaign strategies. The availability and quality of data may vary, impacting the model's accuracy and generalizability. Hence, extensive data cleaning will be required, in fact it would be mandatory. As for the modeling scope, The solution employs machine learning models to predict the likelihood of winning parliament seats for candidates from the political party. It focuses on classification algorithms suited for predicting electoral outcomes based on the available data. The model assists in strategic decision-making related to candidate placement within constituencies to optimize the party's chances of winning parliament seats. **However, it does not address broader campaign strategies or policy development beyond candidate placement.** The project will be given its **maximum effort to adhere** to ethical principles and legal regulations governing the use of data and machine learning in political contexts. Prioritizing fairness, transparency, and accountability in decision-making processes and avoiding biases or discriminatory practices.

PRODUCT OVERVIEW AND UNIQUENESS OF THE PRODUCT

Product:

CyberMace is a machine learning model that primarily focuses on statistical analysis. Using these techniques, the model will estimate the best way for a political party to win the maximum number of parliament seats by placing respective candidates into respective divisions.

Product Description:

Description: Walking through the history of politics, we have seen jaw dropping events that happened overtime. Some include parties winning parliamentary seats despite there being no chance of winning and being hated by the majority of the general public. Our product is mainly inspired by those events. Making a political party win a seat through proper placement of candidates. Because as we know certain personas are favored by certain regions and districts, and sometimes by many regions as well. Some political parties fail to see the patterns, and fail despite all the efforts they put into. CyberMace tries to avoid that. At times proper placement of a famous and skillful candidate in a tricky region may improve the overall performance and votes, hence benefitting the party. The model would be trained using the previous voting polls and results and analyzing them. Also general public opinions would be analyzed as well, through data mining most used social media of the time, the opinions corresponding to votes and results. (reference: <https://gs.statcounter.com/social-media-stats/all/sri-lanka>)

CyberMace would require candidates basic details (name, ID, etc.) and a tricky part of information. At times the information might be a harsh reality check but it's a necessary pain. The candidates publicity, previous public hate records, criminal records, etc. where we assign each positive attribute as a point and each negative attribute as a risk. Then based on the area publicity the model will give a probability of best placement for the party before registering, and would give insights in order to carry on the campaign.

Existing Products:

The existing political app in Sri Lanka is the app version of parliament.lk (<https://www.parliament.lk/mobile-app>) where it gives details of all events within the parliament. And My Vote Sri Lanka allows people to speak out their opinions and how the government should run.

Other foreign apps are about awareness of the constitutions, knowing the running candidates of the area, opinions sharing, journalism on politics, etc.

(reference: <https://goodparty.org/blog/article/10-best-political-apps>)

While CyberMace is benefitting the political party, and enhancing their rate of winning.

Target market:

The target market is clearly for political parties and statisticians. While other personas may benefit from CyberMace as well i.e. political field lawyers, journalists, political scientists, etc.

The demographics for the target market summarizes that CyberMace would be used irrespective of the gender from personas ranging from mid-20s to late-60s. The level of education varies, because the members of the party may include multiple fields of expertise, yet would need the use of the product. Where as it comes for analytical subjects, education ranges from Data analytics, statistics, political science, electoral law, etc. The product may be used globally and contributed so, yet the datasets and the model training is exclusive for Democratic Socialist Republic of Sri Lanka. Mainly this is a B2B model as the platform serves businesses i.e. political parties rather than individual consumers.

BUSINESS MODEL AND MARKETING PLAN

Business Model Overview

CyberMace adopts a pay-per-use approach for its machine learning software, enabling customers to access predictions for parliamentary seat wins from specific electoral districts based on their usage. Customers pay for the predictions they generate, providing flexibility for those who may not require continuous access to the software. Revenue is generated through these pay-per-use transactions, ensuring that customers only pay for the specific insights they need. By offering accurate predictions on a per-use basis, the venture delivers value to political parties, candidates, and campaign strategists, empowering them to make strategic decisions during election campaigns without the need for ongoing subscriptions or large upfront payments.

Industry Specification

CyberMace operates within the political technology (politech) industry, offering a pay-per-use machine learning software solution for predicting parliamentary seat wins in specific electoral districts. Emerging trends within the politech sector include the increasing integration of data analytics and artificial intelligence to augment political campaigns and decision-making processes. CyberMace aligns with this trend by harnessing advanced machine learning algorithms to deliver accurate predictions for election outcomes.

Regulations within the political landscape may support CyberMace's growth potential by promoting transparency and efficiency in electoral processes. For example, regulations aimed at enhancing the integrity of elections and ensuring fair representation could drive demand for CyberMace's innovative predictive analytics platform. Additionally, regulations governing campaign finance and disclosure requirements may create opportunities for CyberMace to offer

compliance-related features within its software, further enhancing its value proposition to political parties and candidates.

Overall, CyberMace is well-positioned to capitalize on the convergence of technology and politics within the politech industry. By providing a cutting-edge predictive analytics tool tailored to the needs of political stakeholders, CyberMace aims to drive its expansion and impact within the sector while capitalizing on emerging trends and regulatory developments.

BUSINESS MODEL AND MARKETING PLAN

Business Model Canvas



Marketing plan and analysis

Business Model Sustainability and Viability:

> Revenue Generation:

Usage-based Pricing: CyberMace implements a usage-based pricing model where customers pay based on their usage of the predictive analytics software. This scalable approach ensures revenue growth as usage increases.

Advertisements: In addition to software revenue, CyberMace can monetize its platform through advertisements targeted at political stakeholders, generating additional revenue streams.

> Cost Structure:

Research and Development: Allocating resources to R&D ensures the continuous improvement of CyberMace's predictive analytics software, enhancing its accuracy and value proposition.

Technology Infrastructure: Investment in robust technology infrastructure supports the scalability, performance, and reliability of the predictive analytics platform.

Human Resources: Hiring skilled professionals in data science, machine learning, software development, sales, and marketing supports business growth and

Marketing and Sales: Allocating resources to marketing and sales activities drives customer acquisition and revenue generation, ensuring the long-term success and sustainability of the business.

> Marketing Strategy:

CyberMace employs a comprehensive marketing strategy to drive customer acquisition and revenue generation:

Targeted Advertising: Utilize targeted advertising campaigns on digital platforms frequented by political stakeholders, such as social media and political websites, to promote CyberMace's predictive analytics software.

Content Marketing: Create informative and engaging content, such as blog posts, whitepapers, and case studies, demonstrating the value of predictive analytics in elections and attracting potential customers.

Partnership Marketing: Collaborate with political organizations, academic institutions, and industry influencers to expand CyberMace's reach and credibility in the political technology market.

Direct Sales: Employ a proactive sales approach, leveraging direct sales channels, email marketing, and personalized demonstrations to engage with potential customers and convert leads into paying customers.

Industry Events Participation: Attend and participate in industry events, conferences, and trade shows related to politics, elections, and technology to

showcase CyberMace's software and network with potential customers and partners.

> Evidence of Successful Implementations:

Similar businesses, such as PredictWise and Election Data Services, have successfully implemented predictive analytics solutions for political forecasting, demonstrating the market demand and feasibility of such business models.

These companies have achieved success by offering accurate predictions, data-driven insights, and value-added services to political stakeholders, establishing themselves as trusted partners in the political technology industry.

Evidence of successful implementations can be found in customer testimonials, case studies, and industry recognition, highlighting the effectiveness and impact of predictive analytics in elections and political decision-making.

By executing a robust marketing strategy and leveraging successful implementations of similar business models, CyberMace can drive customer acquisition, revenue generation, and long-term sustainability in the competitive political technology market.

TECHNICAL OVERVIEW AND IMPLEMENTATION

Current Development Stage:

Currently in the **idea stage**, gathering requirements

1. Idea

To build a machine learning model for predicting ideal candidate placement in electoral districts, gather and clean historical election data, engineer relevant features, choose a suitable algorithm, and train the model. Use Data Mining to extract public opinion via social media. Evaluate its performance, deploy it in a user-friendly interface, and ensure continuous monitoring and ethical compliance. This model assists parties in optimizing candidate placements for electoral success.

2. Business plan

The proposed business model centers around leveraging machine learning to empower political stakeholders with data-driven insights for electoral success. This entails offering consulting services for campaign optimization, a usage-based pricing platform for access to predictive models and analytics, and training sessions to enhance operational effectiveness. Collaborations with industry experts and academic institutions ensure ongoing improvement and accuracy. Additionally, services include custom development, compliance consulting, and fostering long-term partnerships to sustain client engagement and trust. Overall, the model facilitates informed decision-making and strategic planning, ultimately driving electoral outcomes.

3. Minimum Viable Product (MVP)

The minimum viable project (MVP) for CyberMace at its idea stage is to develop a basic version of its predictive analytics software. This version will focus on essential features like data ingestion, basic machine learning algorithms, and a

user interface to predict ideal candidate placement for parliamentary seats. It includes data collection and preprocessing, feature engineering, and the development of basic prediction models. Additionally, the software should integrate with external data sources, undergo accuracy testing, gather user feedback, and prioritize scalability and lean development. The goal is to demonstrate the software's value proposition, validate its effectiveness, and lay the groundwork for future iterations and enhancements.

Implementation

This is a web based application, for ease of usage and publicity.

We have classified it as an ML model, as for the analysis sector. The methodologies have not been confirmed. Hence datasets are readily available for the statistical analysis of voting polls, data mining would be required for social media opinion i.e. public opinion analysis. The best algorithm would be selected after analyzing the structure of datasets that are available in hand, after cleaning, and wrangling.

The technologies and APIs:

Front End Development: React.js or Vue.js for interactive and responsive design

Backend Development: Python with Flask to ease the usage in handling ML models and data analysis and processing

Database: MongoDB for storing unstructured data

Machine learning libraries: Python libraries like Scikit-Learn, TensorFlow, or PyTorch for developing and deploying ML models. (Certain pretrained models might be used in future and certain other libraries maybe included as well)

Data Wrangling: Pandas and NumPy for data manipulation, cleaning and wrangling

Data Visualization: Matplotlib, Seaborn, or other for generating visualizations of the analysis results.

Monitoring and Analytics: Tools such as Sentry and Google Analytics will be integrated for monitoring errors and user interactions, providing insights for further improvements and optimizations.

Security Measures: Security protocols such as HTTPS, encryption of sensitive data, and user authentication will be implemented to protect user information and ensure compliance with data privacy regulations.

APIs: Integrate APIs for accessing external data sources for social media and election commission if possible

(APIs might alter due to certain specifications and changes)

Implementation Methodologies:

- Agile Development: Use Jira for iterative development and frequent releases
- Version control: Using GitHub for version control, facilitating members to update any changes real time
- Continuous integration: testing and debugging to ensure code quality.

Deployment Strategy:

Cloud Hosting: Deploy the application on cloud platforms like AWS, Azure, or Google Cloud for scalability, reliability, and ease of management.

Containerization: Use Docker for containerizing the application components, ensuring consistency across different environments and simplifying deployment.

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