



VIRIDITY CAPITAL LLC

Solicitation Number	FDA-75F40123Q00108
Project Name	On-Line Subscription Access to International Source-Tobacco Industry Business Data and Information
Proposed Cost	\$900,000 base year, \$300,000 per option year
Award Instrument Requested	Firm Fixed Priced Purchase Order
Lead Organization	Viridity Capital LLC
Type of Business	Small Business
Technical Area	Computer Systems Design, Software, Data (541511, 541512, 518210)
Technical and Administrative Point of Contact	Michael You viridity.capital@gmail.com (703) 329-6039 6372 Alderman Dr, Alexandria, VA 22315
Employees	Michael You, Joseph Kim, Wilson Yu, Emily Cheng, Lin Xie
Unique Entity ID	V5GQS6KME915
EIN number	86-2510064
Cage Code	9HZQ9
Place of Performance	6372 Alderman Dr, Alexandria, VA 22315
Date Submitted	April 18, 2023

On-Line Subscription Access to International Source-Tobacco Industry Business Data and Information

Providing easy access to tobacco and nicotine research of over 100 countries.



VIRIDITY CAPITAL LLC

Contents

1	Project Plan	2
1.1	Design of Components	2
1.2	Schedule	3
2	Technical Capabilities	4
3	Cost Breakdown	5
3.1	Direct Labor	5
3.2	Indirect Costs	5
3.3	Travel	6
3.4	Total Costs	6
4	About Viridity Capital	7
4.1	Past Work	7
4.1.1	Lunar Gala - Pittsburgh's Largest Fashion Show	7
4.1.2	Live trading insights	8
4.1.3	Finance Planning	8
4.1.4	Design	9

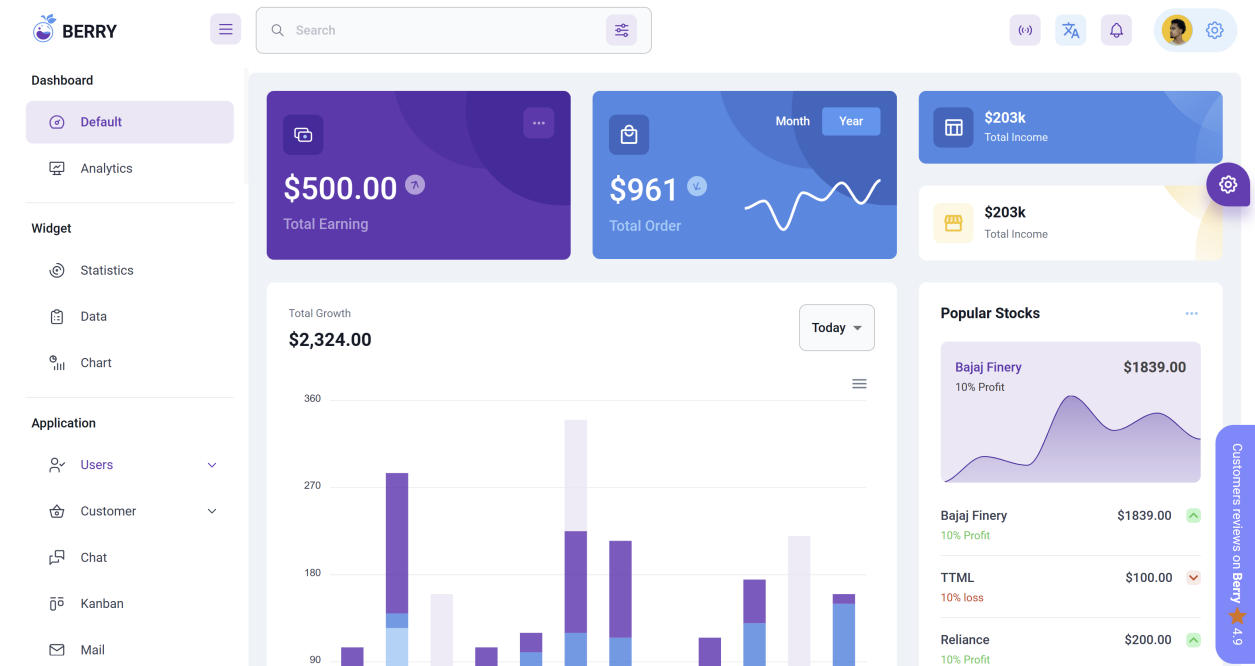
1 Project Plan

We present an idea of what our schedule would be for the project and parts we are imagining.

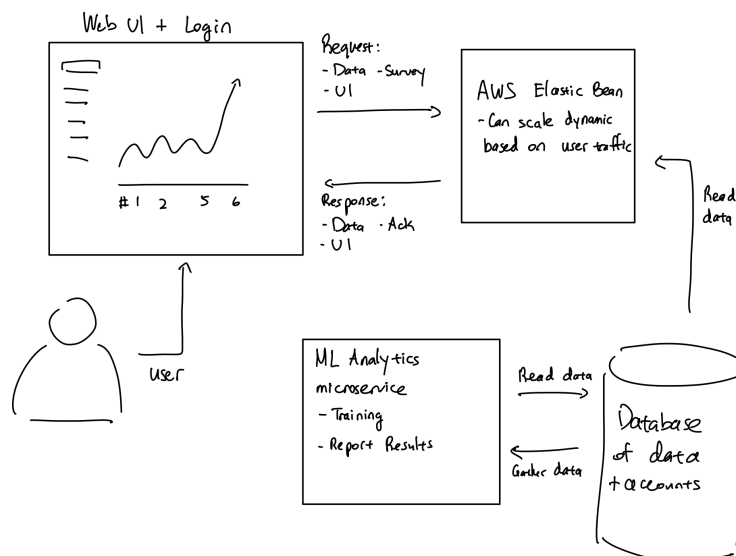
1.1 Design of Components

We envision the best way to build the Passport Tobacco with Nicotine Survey Data product is to provide a web portal, that provides the user functions to view many files, search through and download data, and view analytics.

We would start with a dashboard with some key analytics, and a function bar with the ability to perform a variety of actions, including search and analytics.



We would have a high-level design like the diagram below.



1.2 Schedule

Day 1-5	Set up web server and login credentials
Month 1	<ul style="list-style-type: none">▪ Build basic UI for website▪ Load data into database▪ Schema design for data
Month 2	<ul style="list-style-type: none">▪ Build dashboard components to display data: graphs, boxes, legends▪ Build search API▪ Add website analytics to track usage
Month 3	<ul style="list-style-type: none">▪ Build search UI and download ability▪ Prepare Q1 report
Month 4	<ul style="list-style-type: none">▪ Build analytics for data▪ Start training ML models for analytics
Month 5	<ul style="list-style-type: none">▪ Begin designing survey UI▪ Set up schema for survey data collection
Month 6	<ul style="list-style-type: none">▪ Launch sample survey to test functionality▪ Prepare for Q2 report
Month 7	<ul style="list-style-type: none">▪ Build functionality for sharing reports of data▪ Improve personalized analytics and search▪ Start a reliability sprint to make sure codebase is good and website is free of bugs
Month 8	<ul style="list-style-type: none">▪ Build functionality for sharing reports of data (continued)▪ Begin designing survey UI and data collection
Month 9	<ul style="list-style-type: none">▪ Address issues with platforms▪ Train users to use our platform▪ Q3 report
Month 10-12	<ul style="list-style-type: none">▪ Additional buffer time that will likely be needed to ensure the project finishes on time

2 Technical Capabilities

We have expertise a variety of frontend, backend and data tools. Some are listed below to give an idea, but the list is not exhaustive. Please also see Section 4.1 to see some of the past work we have taken to see our work capabilities and quality.

We are able to build systems from scratch, from bare metal, to server racks, all the way up to design and UI for websites, and including setting up databases.

- **Web technologies**

- React, Angular, Relay, GraphQL
- Nodejs, Express, Webpack, Django, Flask
- Typescript, SASS
- d3.js, AG Grid, Chart.js, three.js

- **Machine Learning**

- Neural Networks (GAN, CNN, RNN, Transformers)
- PyTorch, Tensorflow, Google Colab
- Stable Diffusion, Natural Language Processing, Computer Vision

- **Backend and Systems**

- Kubernetes, AWS, Kafka, Redis, Docker
- Compilers, Operating systems, embedded systems

- **Databases**

- MongoDB, Snowflake, PostgreSQL, MySQL, Oracle, Neo4j

- **Security**

- AES, SHA and other industry-standard encryption
- User data protection, privacy

- **Programming Languages**

- C, C++, C#, Python, Javascript, PHP, Java, Go, Assembly, System Verilog

3 Cost Breakdown

At Viridity Capital LLC, we strive to be very efficient with our costs, and have already cut costs upfront in this proposal.

The costs here are indicated for a year, and as there is options for more years on the contract, our cost for each option year will be the same as the first.

3.1 Direct Labor

We have calculated the 2000 hrs worked as 2080 hrs minus 10 Federal holidays for the year.

It is noted that the CEO has significantly more responsibilities than the engineers, as he has to meet with stakeholders, provide roadmap, planning, and also is an engineer as well.

Name	Title	# Hours Worked	Hourly Rate	Total Cost
Michael You	CEO & Engineer	2000	\$75.00	\$150,000
Joseph Kim	Engineer	2000	\$37.50	\$75,000
Wilson Yu	Engineer	2000	\$37.50	\$75,000
Emily Cheng	Engineer	2000	\$37.50	\$75,000
Lin Xie	Engineer	2000	\$37.50	\$75,000
			Total	\$450,000

3.2 Indirect Costs

We will need to purchase compute for hosting the website, storing data in databases, and providing analytics. We will be using a combination of AWS Lambdas and Elastic Beanstalk. We have estimated \$10,000 a month for the compute costs as we have seen similarly scaled businesses use around that much for their services which provide websites with analytics for users worldwide.

We will save costs by having employees use our own laptops to work on. The company has agreed that we don't need to provide benefits to the employees as well to additionally save costs. We will also choose to forgo purchasing subscriptions for coworking space such as WeWork.

Item	Quantity	Unit Cost	Sum Cost
Compute (AWS) ¹	12	\$10,000/month	\$120,000
Statista ²	1	\$20,000	\$20,000
GitHub Pro ³	12 · 5 = 60	\$21/month per user	\$1,260
MongoDB ⁴	12	\$120/month	\$1440
		Total	\$142,700

¹Calculated using <https://calculator.aws/>

²Find pricing here. Tax added for completeness.

³Enterprise plan

⁴Atlas Dedicated, 2 DBs for the data and the surveys

3.3 Travel

We will have travel taken by all members once a month to meet in person. As we have workers in New York City and Washington DC, we will travel by train. The Per Diem cost includes hotel and food for the day.

Item	Quantity	Unit Cost	Sum Cost
Train	$12 \cdot 5 = 60$	\$200	\$12,000
Ground Transportation	$12 \cdot 5 = 60$	\$200	\$12,000
Per Diem	$12 \cdot 5 = 60$	\$300	\$18,000
		Total	\$42,000

3.4 Total Costs

Summing up our total costs, we arrive at the final cost of \$634,700.

Category	Total Cost
Direct Labor	\$450,000
Indirect Costs	\$142,700
Travel	\$42,000
TOTAL	\$634,700

As mentioned earlier, the final cost of \$634,700 is for one year. This cost is the same for each option year.

4 About Viridity Capital

Viridity Capital LLC builds industry-leading technologies that are clean, smooth, and a delight to use. We have created web sites and backend services for Pittsburgh's largest fashion show, built trading dashboards for high-frequency quant traders, and built numerous portfolio sites for clients.

We use the best industry practices for technology, including top cybersecurity measures, compliance with regulations, continuous integration and deployment, a vast testing suite, code quality, code review and much more.

Our team consists of graduates from top universities such as Carnegie Mellon and Cornell University. We have a wide variety of talent from design, mathematics, computer science, electrical engineering, stats, and machine learning.

As a Small Business, we are able to move fast, and ship your product fast. We look forward to working with you to help you discover the future of tech!

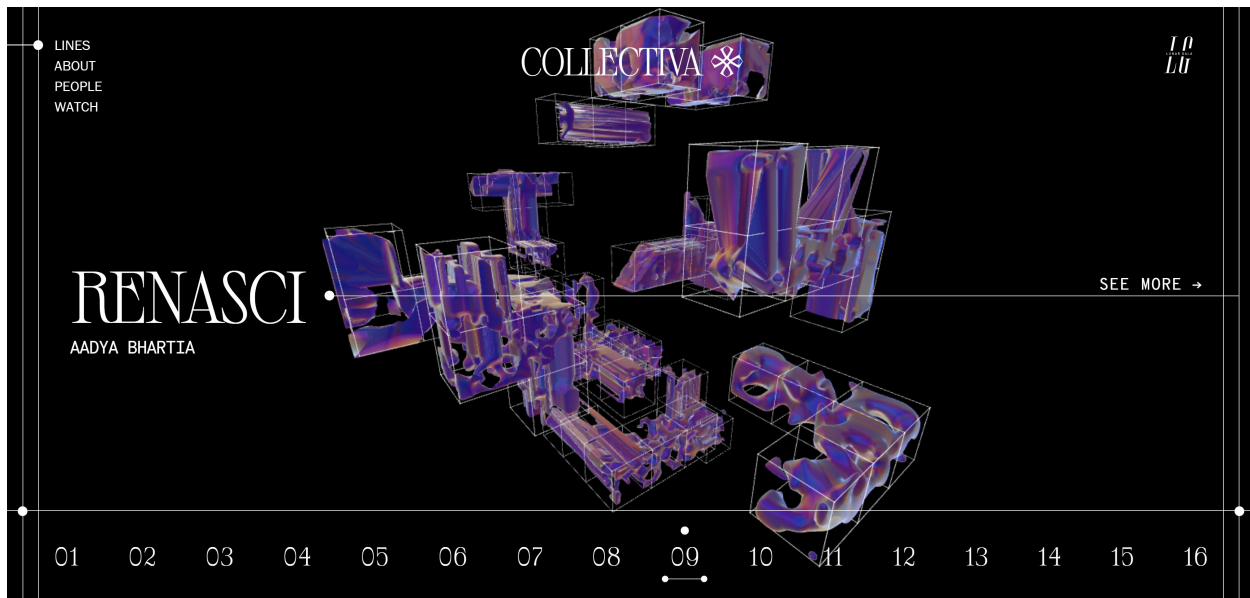
We are based in Northern Virginia, near Washington DC.

4.1 Past Work

Check out some of our previous work.

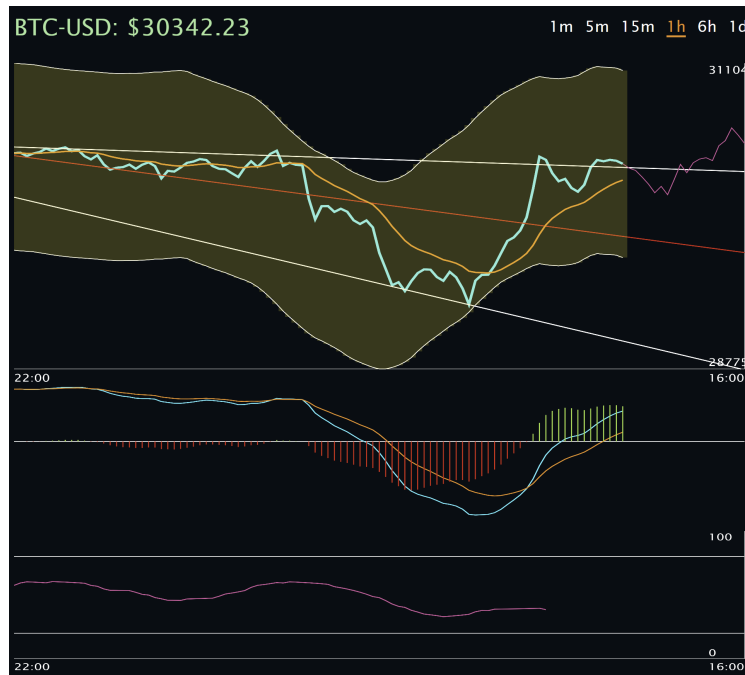
4.1.1 Lunar Gala - Pittsburgh's Largest Fashion Show

Implemented and designed. Fashion show watched by over 10,000 people live. View our live demo here: <http://2021.lunargala.org>.



4.1.2 Live trading insights

Data visualization built with custom graphics and data ingestion. [View demo here.](#)



4.1.3 Finance Planning

Data visualization for financial planning. [View demo here.](#)

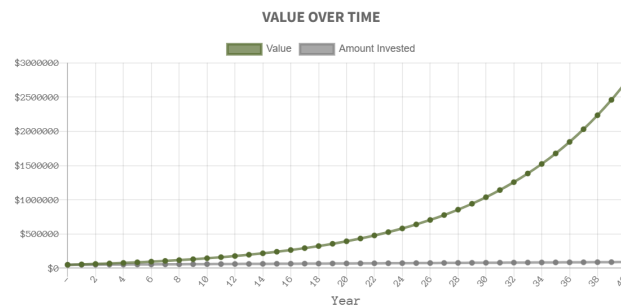
Compound Interest

INITIAL INVESTMENT (\$)	<input type="text" value="50000"/>	NUMBER OF YEARS	<input type="text" value="40"/>
RECURRING INVESTMENT (\$)	<input type="text" value="1000"/>	EVERY	<input type="text" value="Year"/>
INTEREST RATE (%)	<input type="text" value="10"/>	INFLATION RATE (%)	<input type="text" value="3"/>

Calculate

☐ Break Down by Time

☐ Compare Against Today's Dollars



FINAL VALUE \$2,705,555.33

RETURNS 2,906.2%

4.1.4 Design

We have talented designers that can produce aesthetic graphics and web designs.

