




Leveraging Social Media to Map Disasters

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Problem

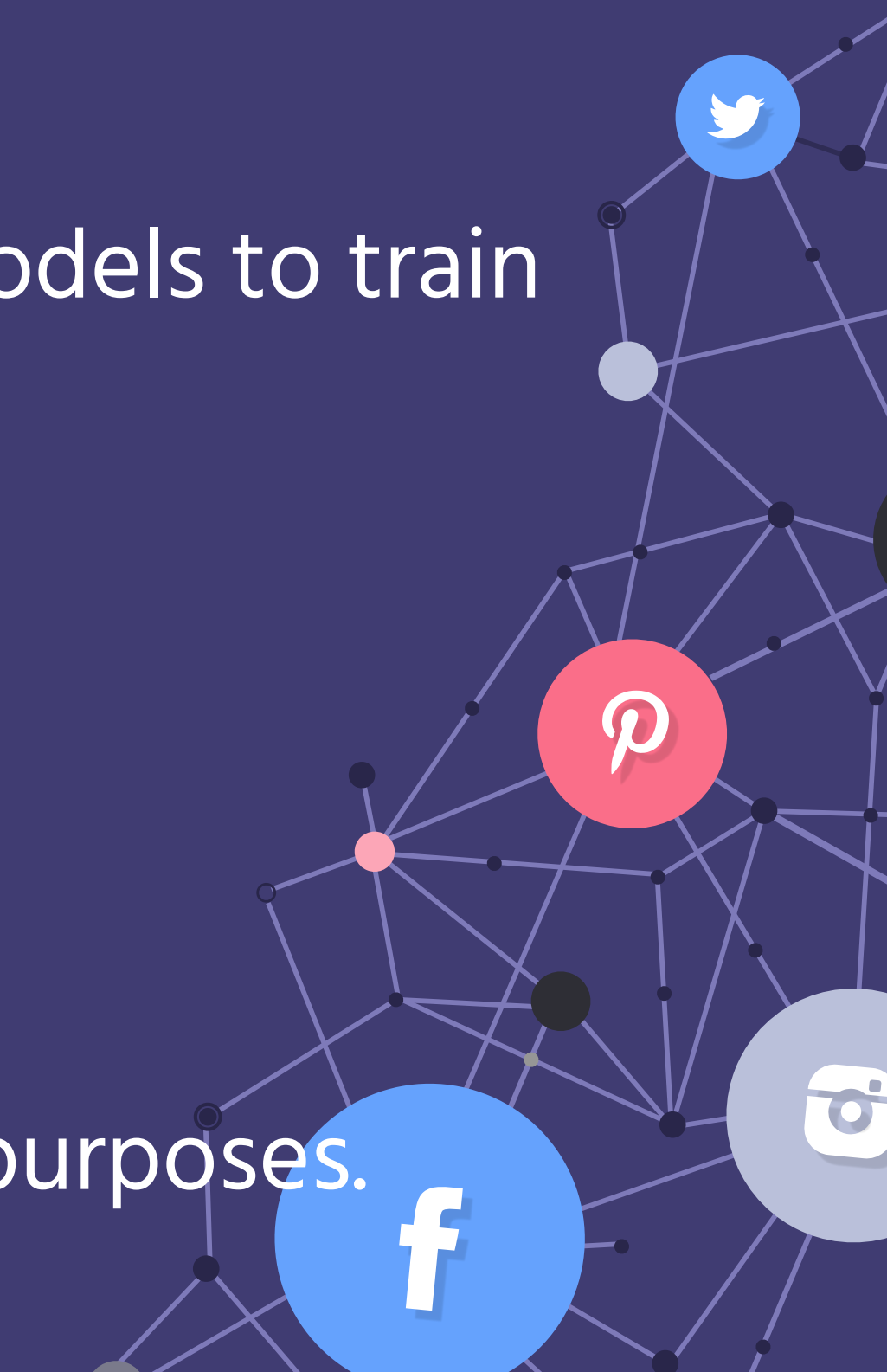


Tasked with producing an output which would map input from social media users regarding a relevant disaster or emergency thus we decided to create a web app.





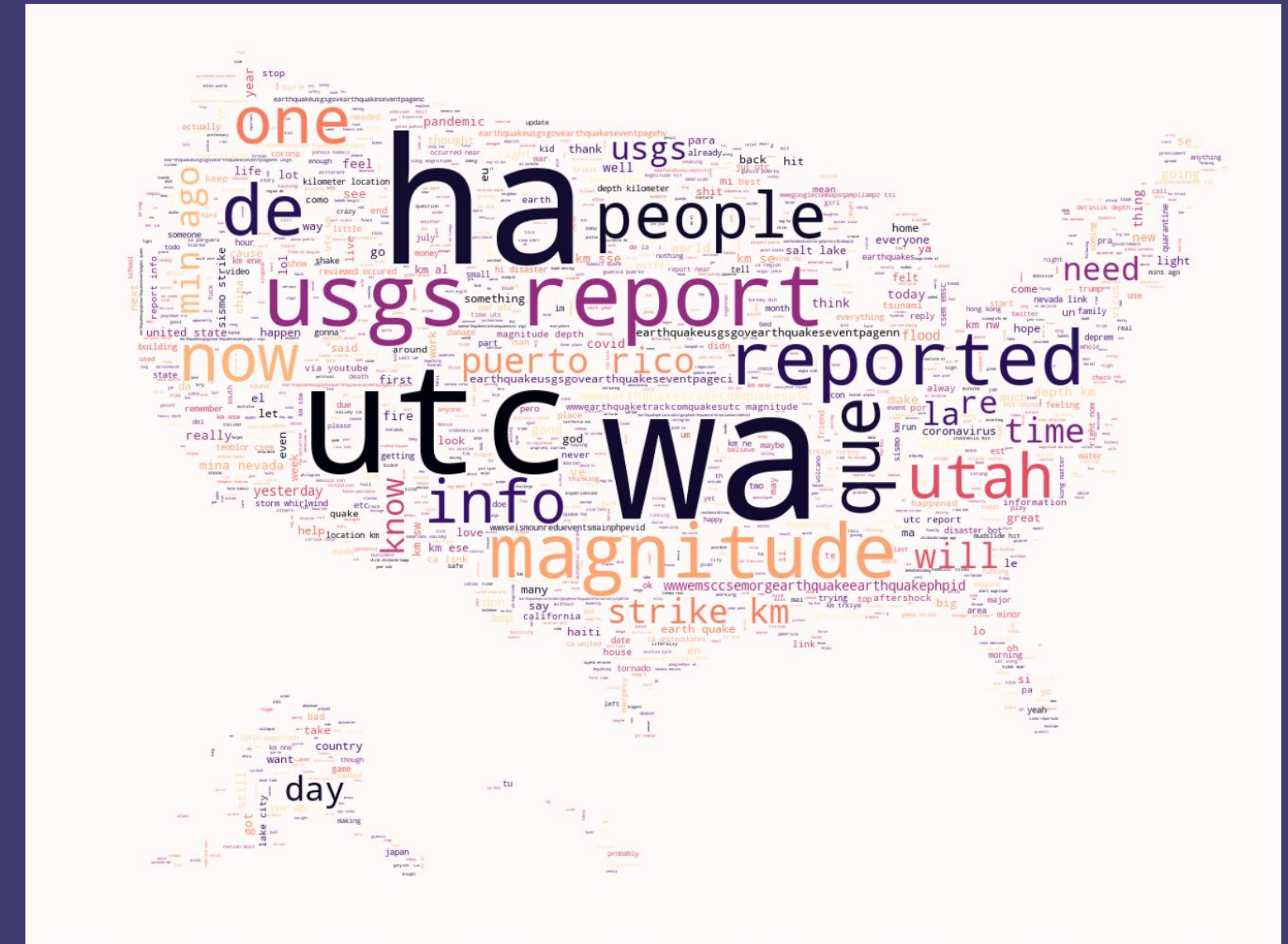
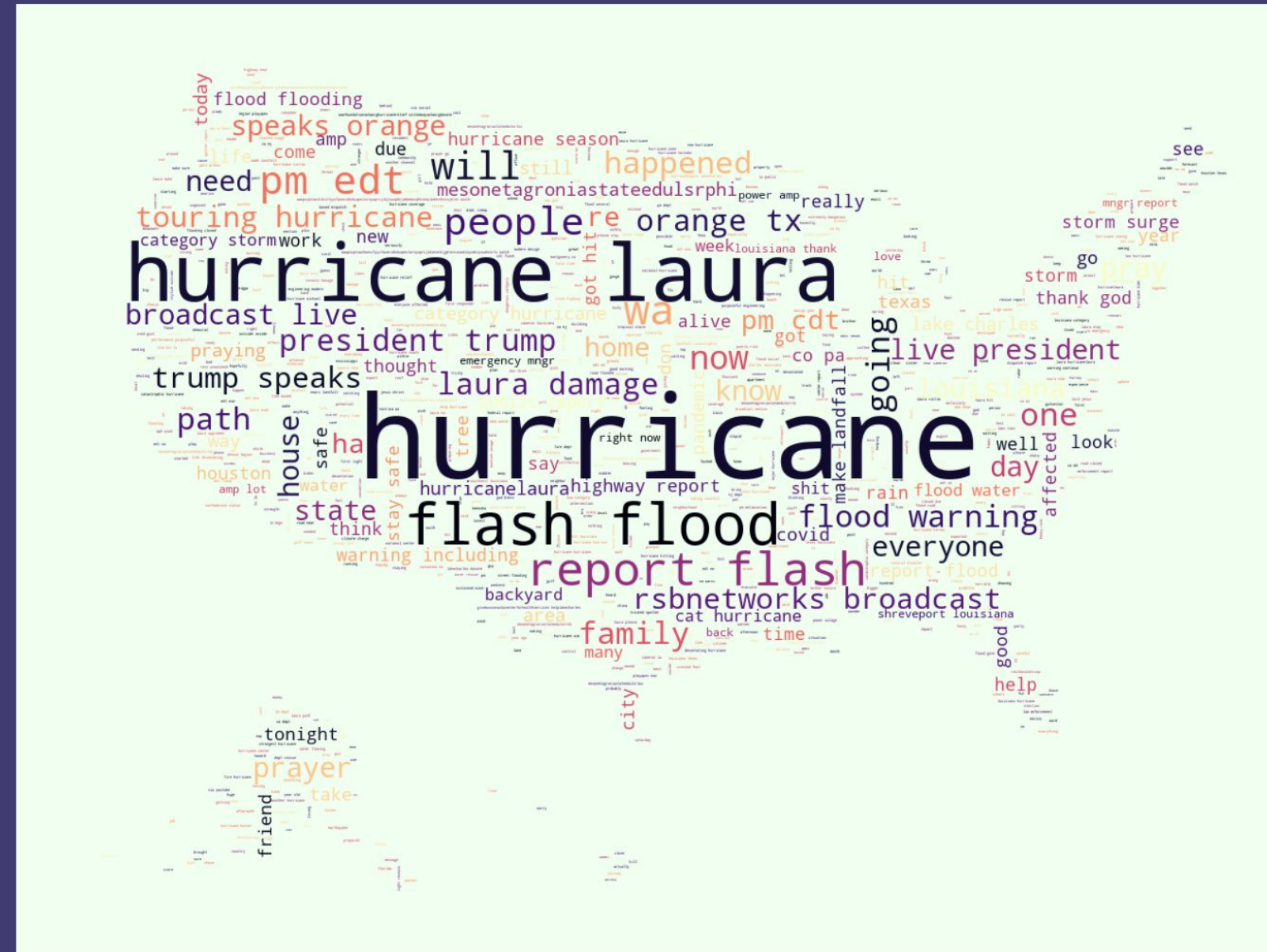
Project Goal

- ✔ Collect tweet messages data relating to #earthquake, #wildfire, #hurricane Twitter hashtags using Twitter API's
 - ✔ Find tweet messages from user input keywords and map the location of the disasters
 - ✔ Use the tweet message data with supervised/unsupervised learning models to train a model that will classify tweets and predicted disasters
 - ✔ Map tweet message data collected in order to:
 - Accurately locate hot spots where people are needing assistance.
 - Effectively allocate resource for relief work.
 - Precisely evaluate local damage and economic impact for insurance purposes.
- 



Process

- ✓ Data Collection
- ✓ Data Cleaning and Geolocation Generation
- ✓ Labelling Disasters
- ✓ Data Analysis
- ✓ Modeling / Model Selection
- ✓ Application Creation






Model - Supervised Learning

- ✓ Vectorizer: CountVectorizer, Tf-idf Vectorizer
 - ✓ Classifier: Support Vector Machine
 - ✓ Accuracy Score: **> 89%**
- 

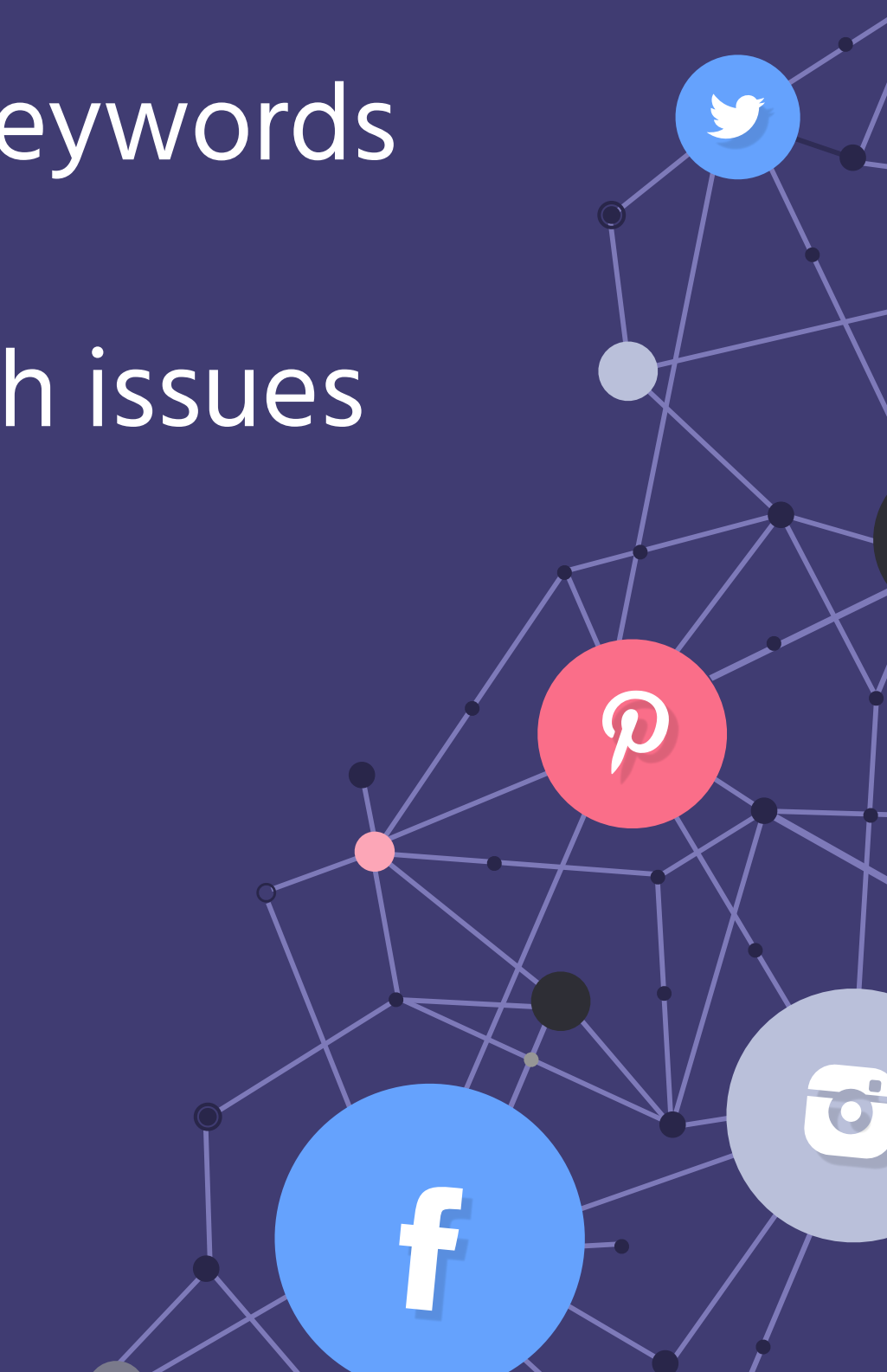


Model - Unsupervised Learning

- ✓ Vectorizer: Word2Vec
 - ✓ Classifier: Support Vector Machine
 - ✓ Accuracy Score: **> 85%**
- 



Application with Flask

- ✓ Take user input for emergencies
 - ✓ Look through the tweets and find ones with matching keywords
 - ✓ With the geolocation from the tweets, display areas with issues on the map
- 

A decorative network of social media icons in the top-left corner, including Facebook (f), Pinterest (p), and Twitter (bird), connected by a web of lines.


Application with Flask

➤ To Chris's Screen!

A decorative network of social media icons in the bottom-right corner, including Facebook (f), Pinterest (p), and Twitter (bird), connected by a web of lines.



Takeaway

- ✓ We can leverage information from social media in case of emergencies to map the disaster location with about 90% accuracy.
 - ✓ An ethical decision needs to be made for one's privacy for location information to be available.
 - ✓ Future work and opportunities.
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Thanks!

Any questions?