Wind Finder Web Application

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A kite needs a wind to fly

- **Kitesurfing,** like other wind-based sports such as sailing, requires certain **environmental conditions** to be met

- **Create a resource** for kitesurfers and promote engagement in the sports
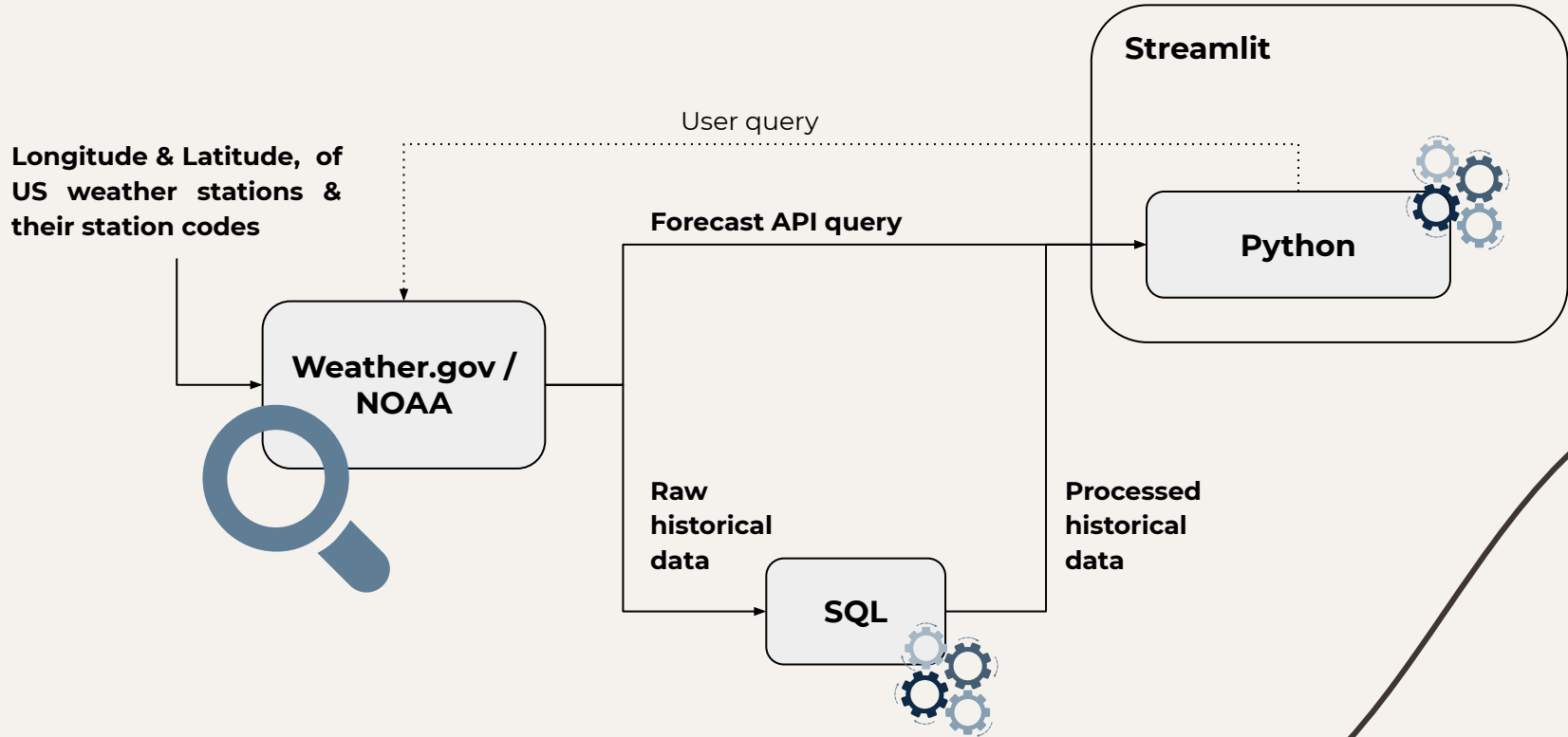
Map of wind and kite size

- The optimal wind speed to start a kite is **12 knots** for a beginner with 'average' equipment

- The **minimum wind** to start a kite is around **9 knots** but requires skill and larger than average kite

SIZE	9	12	15	20	25	30	35 KNOTS
4							
5							
6							
7							
8							
9							
10							
11							
12							
14							

Architecture overview

Streamlit

User query

Longitude & Latitude, of US weather stations & their station codes

Forecast API query

Python

Weather.gov / NOAA

Raw historical data

Processed historical data

SQL

Data flow-through

```
requests.get('https://api.weather.gov/gridpoint
{'@context': ['https://geojson.org/geojson-ld/g
 {'@version': '1.1',
  'wmoUnit': 'https://codes.wmo.int/common/uni
  'nwsUnit': 'https://api.weather.gov/ontology,
'id': 'https://api.weather.gov/gridpoints/AMA/7
'type': 'Feature',
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 'coordinates': [[[-101.0477508, 35.8898727],
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   [-101.0189271, 35.968074],
   [-101.0477508, 35.8898727]]]},
'properties': {'@id': 'https://api.weather.gov,
 '@type': 'wx:Gridpoint',
 'updateTime': '2021-12-17T02:45:33+00:00',
 'validTimes': '2021-12-16T20:00:00+00:00/P7DT
 'elevation': {'unitCode': 'wmoUnit:m', 'value
 'forecastOffice': 'https://api.weather.gov/of
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 'gridX': '77',
 'gridY': '53',
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  'values': [{'validTime': '2021-12-16T20:00:0(
    'value': 11.11111111111111},
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    'value': 12.222222222222221},
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```

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'dewpoint': {'uom': 'wmoUnit:(
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```

```
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'potentialOf30mphWindGusts': {'values': []},
'potentialOf40mphWindGusts': {'values': []},
'potentialOf50mphWindGusts': {'values': []},
'potentialOf60mphWindGusts': {'values': []},
'grasslandFireDangerIndex': {'values': []},
'probabilityOfThunder': {'values': []},
```

About 2,000 data points

Web app demo

Future work

Additional data
Wave, precipitation

Highlight locations
Point me to the wind

Evaluation
Equipment
recommendation

Troubleshoot
Bug fixes

Q&A