EIWL Sections 45 and 46

8/8

Due to getting a little behind in the final two weeks of the semester, I only checked for completeness on PS 18-21. ~Brian

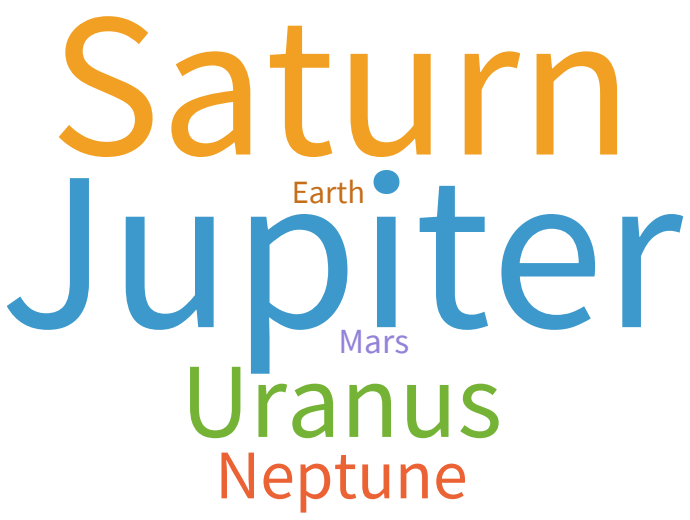
```
planets = CloudGet["http://wolfr.am/7FxLgPm5"]
```

Out[•]=

	Mass	Radius	Moons		
				Mass	Radius
Mercury	3.30104×10^{23} kg	1516.0 mi			
Venus	4.86732×10^{24} kg	3760.4 mi			
Earth	5.9721986×10^{24} kg	3958.761 mi	Moon	7.3459×10^{22} kg	1079.6 mi
Mars	6.41693×10^{23} kg	2106.1 mi	Deimos	1.5×10^{15} kg	3.9 mi
			Phobos	1.072×10^{16} kg	6.90 mi
Jupiter	1.89813×10^{27} kg	43 441. mi	Adrastea	$7. \times 10^{15}$ kg	5.1 mi
			Aitne	$4. \times 10^{13}$ kg	0.93 mi
			69 total		
Saturn	5.68319×10^{26} kg	36 184. mi	Aegaeon	—	0.16 mi
			Aegir	—	1.9 mi
			62 total		
Uranus	8.68103×10^{25} kg	15 759. mi	Ariel	1.35×10^{21} kg	359.7 mi
			Belinda	3.57×10^{17} kg	25.0 mi
			27 total		
Neptune	1.02410×10^{26} kg	15 299. mi	Despina	2.1×10^{18} kg	47. mi
			Galatea	3.7×10^{18} kg	55. mi
			14 total		

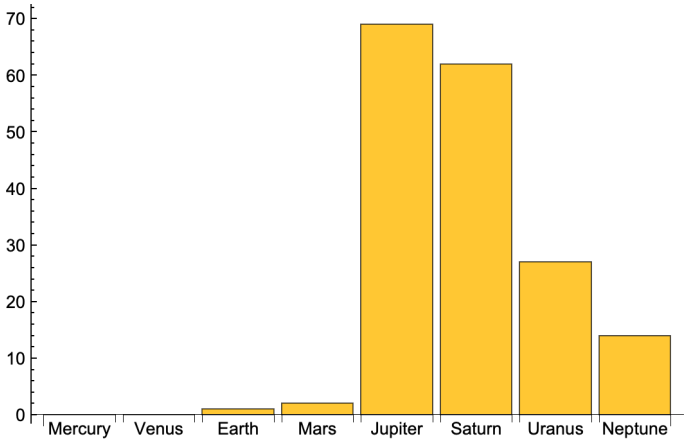
```
(*45.1*)WordCloud[planets[All, , Length]]
```

Out[ ]=




```
(*45.2*)BarChart[planets[All, , Length], ChartLabels → Automatic]
```

Out[ ]=




```
(*45.3*)planets[SortBy[Length[]],]
```

Out[ ]=

Mercury	3.30104×10^{23} kg
Mars	6.41693×10^{23} kg
Venus	4.86732×10^{24} kg
Earth	5.9721986×10^{24} kg
Uranus	8.68103×10^{25} kg
Neptune	1.02410×10^{26} kg
Saturn	5.68319×10^{26} kg
Jupiter	1.89813×10^{27} kg

```
(*45.4*)planets[All, , Max,]
```

Out[ ]=

Mercury	$-\infty$
Venus	$-\infty$
Earth	7.3459×10^{22} kg
Mars	1.072×10^{16} kg
Jupiter	1.4815×10^{23} kg
Saturn	1.3452×10^{23} kg
Uranus	3.526×10^{21} kg
Neptune	2.1394×10^{22} kg

```
planets[All, "Moons", Total, "Mass"]
```

Out[ ]=

Mercury	0
Venus	0
Earth	7.3459×10^{22} kg
Mars	1.22×10^{16} kg
Jupiter	3.9301×10^{23} kg
Saturn	1.4051×10^{23} kg
Uranus	9.14×10^{21} kg
Neptune	2.1487×10^{22} kg

```
(*45.6*)planets[All, , Median,]
```

Out[ ]=

Mercury	—
Venus	—
Earth	7.3459×10^{22} kg
Mars	6.10×10^{15} kg
Jupiter	1.9×10^{14} kg
Saturn	8.2×10^{15} kg
Uranus	3.57×10^{17} kg
Neptune	3.7×10^{18} kg

```
(*45.7*)planets[All, , Select[#Mass > 0.0001 Earth PLANET ••• ✓ [] &]]
```

Out[•]=

		Mass	Radius
Mercury			
Venus			
Earth	Moon	7.3459×10^{22} kg	1079.6 mi
Mars			
Jupiter	Callisto	1.0757×10^{23} kg	1497.7 mi
	Europa	4.7987×10^{22} kg	969.84 mi
	4 total		
Saturn	Dione	1.0955×10^{21} kg	349.5 mi
	Iapetus	1.8055×10^{21} kg	456.4 mi
	5 total		
Uranus	Ariel	1.35×10^{21} kg	359.7 mi
	Oberon	3.013×10^{21} kg	473.1 mi
	4 total		
Neptune	Triton	2.1394×10^{22} kg	840.96 mi

```
(*45.8*)WordCloud[Association[# → StringLength[WikipediaData[#]]]] & /@
 CommonName[EntityList[Latin America COUNTRIES]]
```

Out[•]=

```
(*45.9, 45.10*)ResourceData["Fireballs and Bolides"][Max, "Altitude"]
ResourceData["Fireballs and Bolides"][TakeLargest[5], "Altitude"]
```

Out[•]=

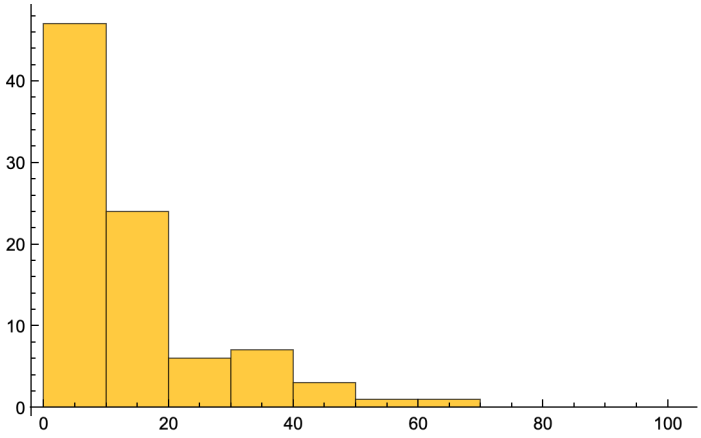
66.6 km

Out[•]=

66.6 km
59.3 km
50 km
45.5 km
44 km

```
(*45.11*)Histogram[ Differences[ResourceData[][All,]]]
```

Out[•]=




```
(*45.12*)GeoListPlot[ ResourceData[][1 ;; 10,]]
```

Out[•]=

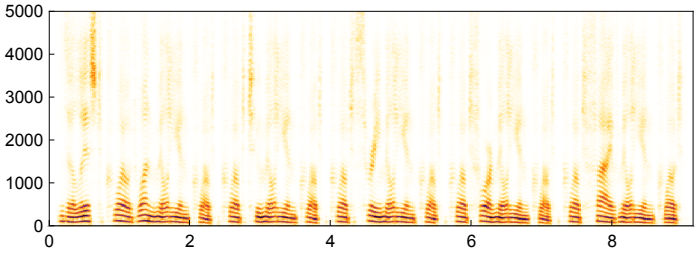
```
(*45.13*)GeoListPlot[ ResourceData[][TakeLargestBy[#Altitude &, 10],]]
```

Out[ ]=

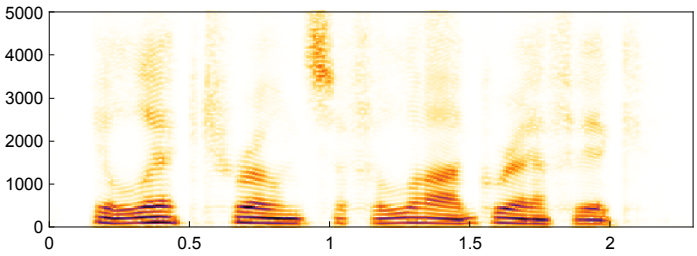
```
(*Next chapter*)
```

```
(*46.1*)
Spectrogram[SpeechSynthesize[Table[StringTemplate["`` million"][i], {i, 5}]]]
```

Out[ ]=




```
(*46.2*)Spectrogram[SpeechSynthesize[Last[SortBy[WordList[], StringLength]]]]
```

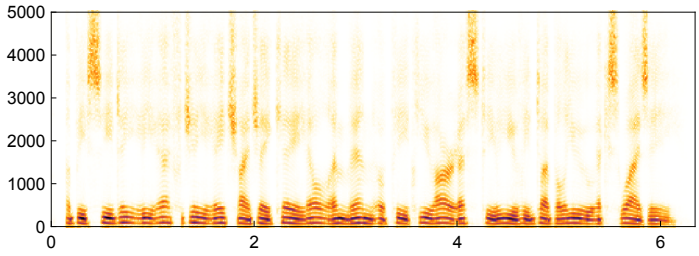



```
(*46.3*)SpeechSynthesize[StringJoin[Riffle[Alphabet[],]]]
```

Out[ ]=

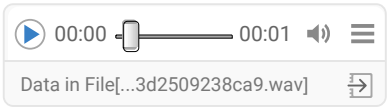
```
(*46.4*)Spectrogram[SpeechSynthesize[StringJoin[Riffle[Alphabet[],]]]]
```

Out[ ]=




```
(*46.5*)AudioPitchShift[SpeechSynthesize[], 2]
```

Out[ ]=



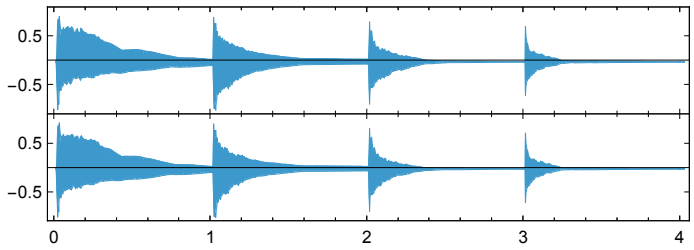

```
(*46.6*)
Table[SpeechRecognize[AudioPitchShift[SpeechSynthesize[], n]], {n, 1, 1.5, 0.1}]
```

Out[ ]=

```
{Computer., Computer., Computer., Computer., Computer., Thank you, Jack.}
```

```
(*46.7*)AudioPlot[Sound[Table[SoundNote[12 n, 1, ], {n, 0, 3}]]]
```

Out[ ]=




```
(*46.8*)Table[AudioIdentify[AudioPitchShift[SoundNote[0, 1, ], n]], {n, 0.5, 1, 0.1}]
```

Out[ ]=

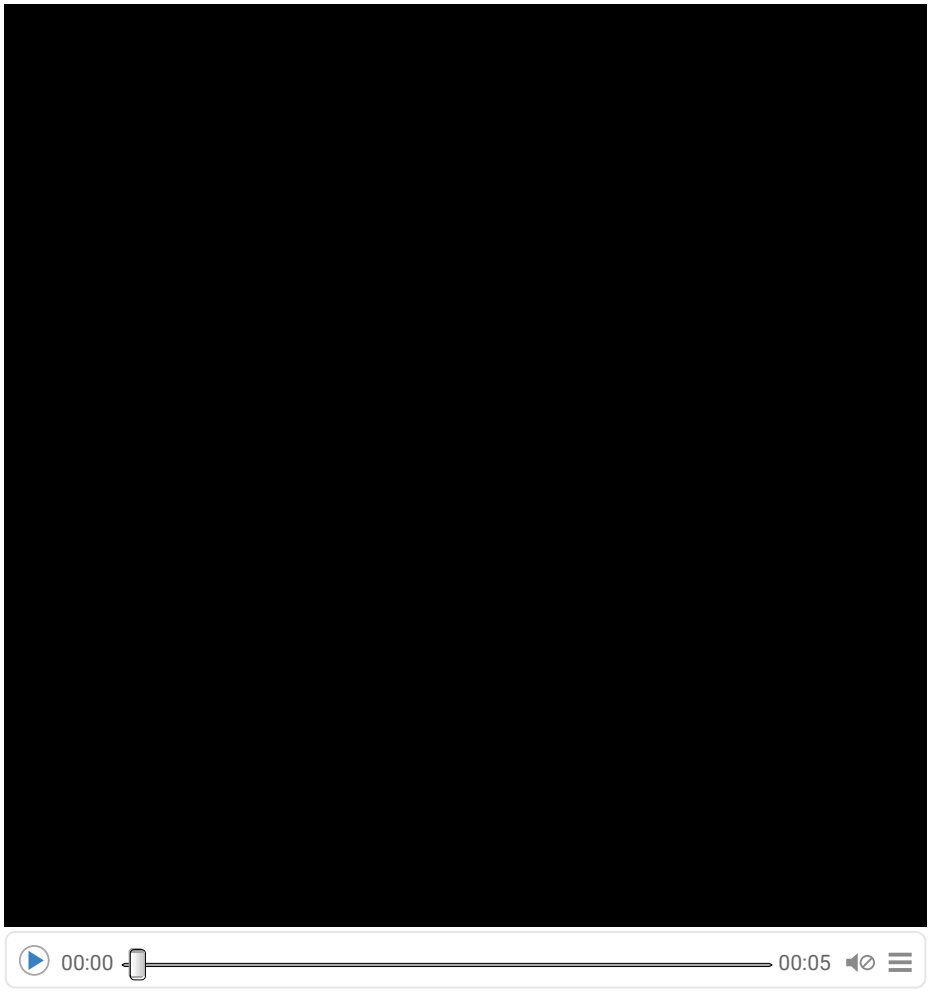
```
{trombone, trombone, trombone, trombone, trumpet, trumpet}
```

In[ ]:=

```
(*46.9*)AnimationVideo[Blur[CurrentImage[], 20 - n], {n, 0, 20}]
```

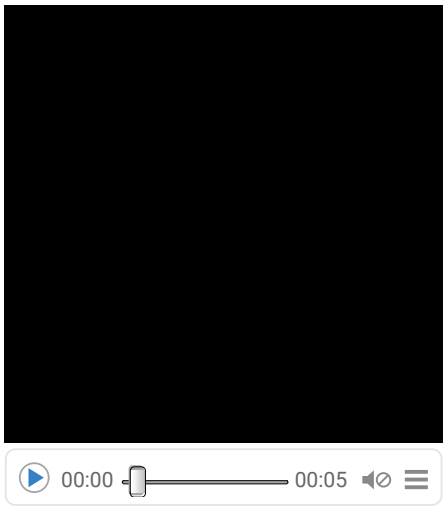
```
(*46.10*)AnimationVideo[Graphics[{Circle[], RegularPolygon[n]}], {n, 3, 20}]
```

Out[•]=




```
(*46.11*)AnimationVideo[Graphics[Style[Disk[], Hue[n]], ImageSize → 50], {n, 0, 1}]
```

Out[•]=



```
(*46.12*)AnimationVideo[
 Rasterize[Style[ToUpperCase[FromLetterNumber[n]], 200]], {n, 1, 26, 1}]
```

Out[•]=