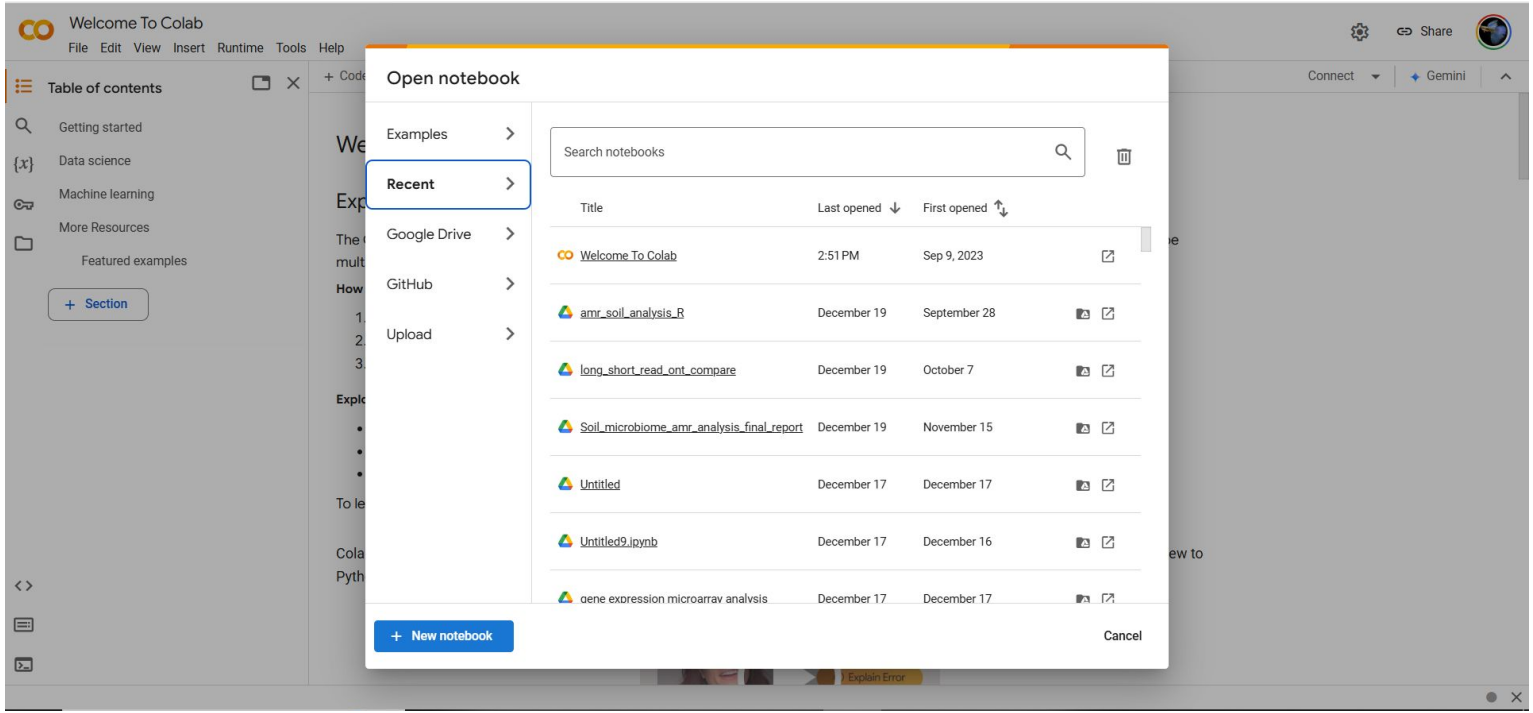

colab
Introduction colab
Ho Phu Quy


Welcome To Colab
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long_short_read_ont_compare December 19 October 7
Soil_microbiome_amr_analysis_final_report December 19 November 15
Untitled December 17 December 17
Untitled9.ipynb December 17 December 16
gene expression microarray analysis December 17 December 17
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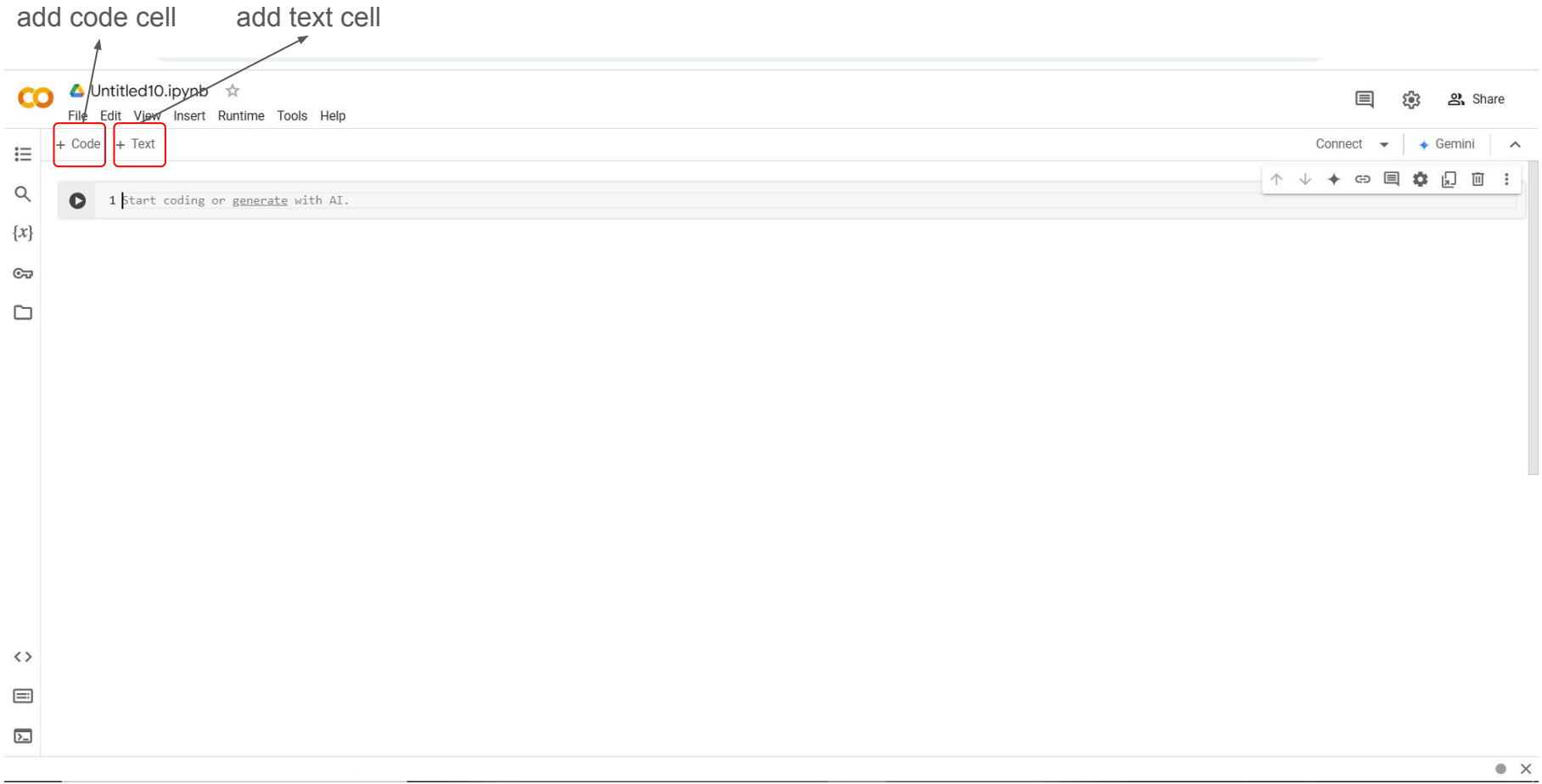
Cancel


add code cell
add text cell
Untitled10.ipynb
File Edit View Insert Runtime Tools Help
Share
+ Code
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Connect
Gemini
1 Start coding or generate with AI.

Shortcut Function	Key Combination
Mount Drive	Ctrl + D
Unmount Drive	Ctrl + U
Convert to Text Cell	Ctrl + M M
Convert to Code Cell	Ctrl + M Y
Move Cell Up	Ctrl + M K
Move Cell Down	Ctrl + M J
Insert Code Cell Above	Ctrl + M A
Insert Code Cell Below	Ctrl + M B
Show Keyboard Shortcuts	Ctrl + M H
Split Cell at the Cursor	Ctrl + M -
Undo Cell Level Action	Ctrl + M Z
Run Selected Code	Ctrl + Shift + Enter
Clear Selected Output	Ctrl + M C

https://www.analyticsvidhya.com/blog/2020/04/5-amazing-google-colab-hacks-you-should-try-today/

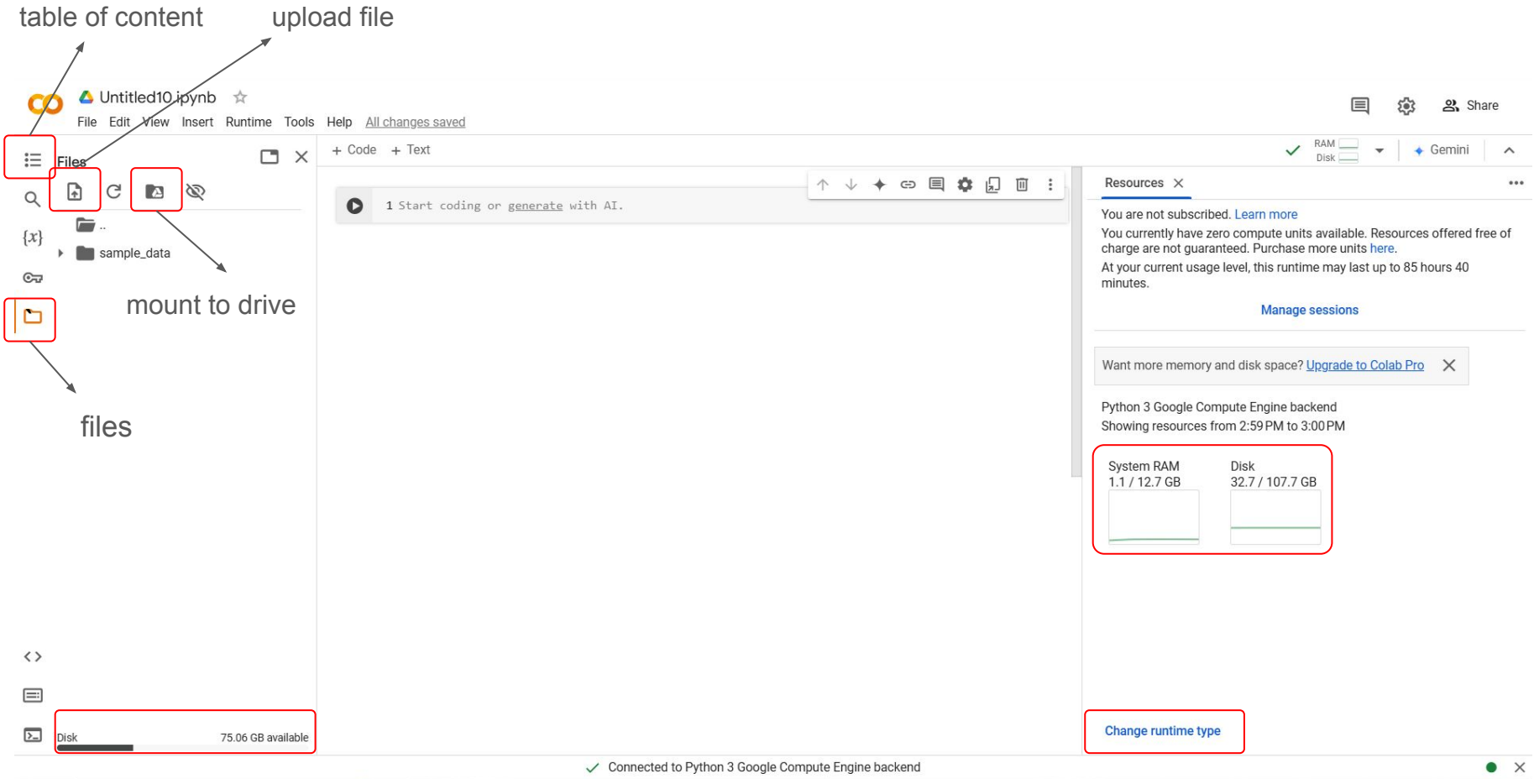
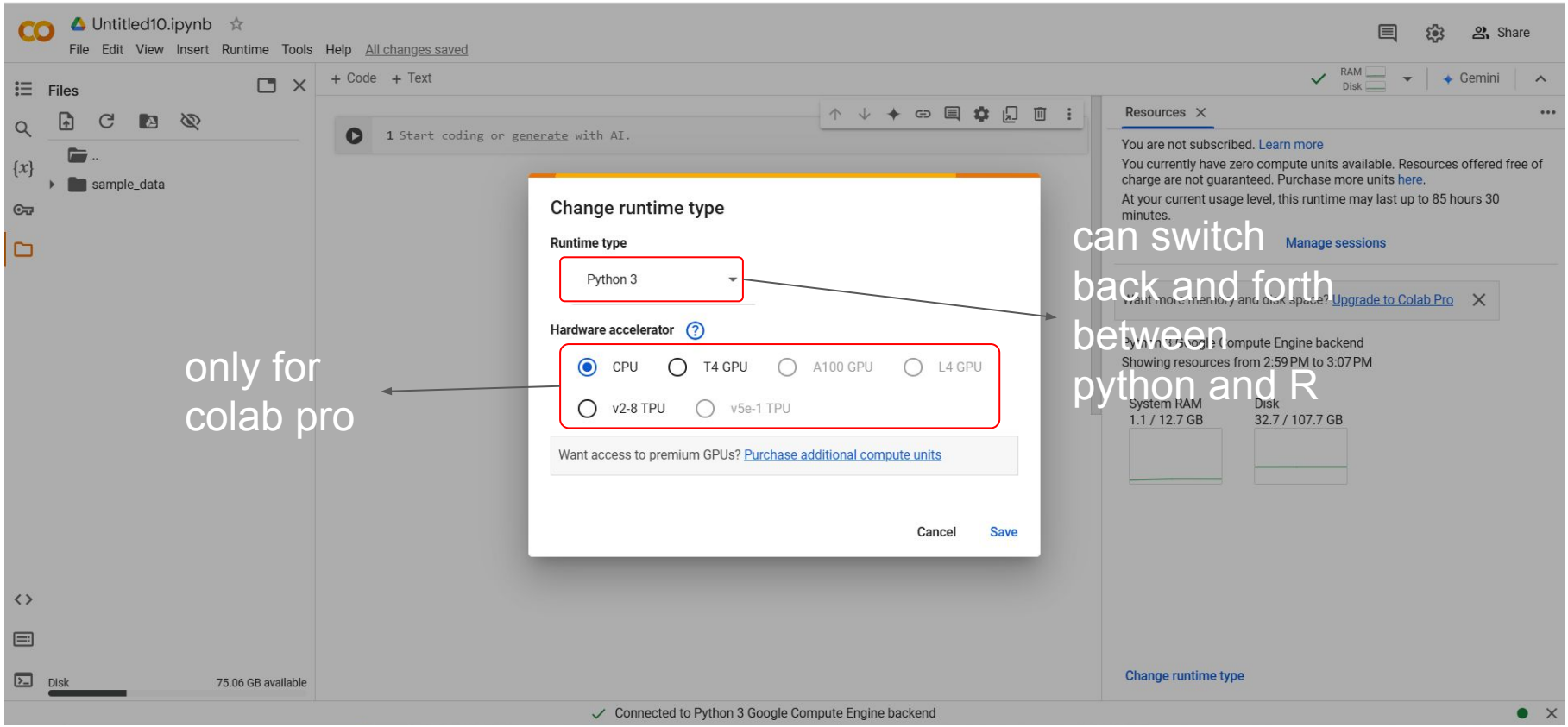


table of content
upload file
Untitled10.ipynb
File Edit View Insert Runtime Tools Help All changes saved
Share
Files
+ Code + Text
RAM
Disk
Gemini
1 Start coding or generate with AI.
Resources
You are not subscribed. Learn more
You currently have zero compute units available. Resources offered free of charge are not guaranteed. Purchase more units here.
At your current usage level, this runtime may last up to 85 hours 40 minutes.
Manage sessions
Want more memory and disk space? Upgrade to Colab Pro
Python 3 Google Compute Engine backend
Showing resources from 2:59 PM to 3:00 PM
System RAM
1.1 / 12.7 GB
Disk
32.7 / 107.7 GB
..
sample_data
mount to drive
files
Disk
75.06 GB available
Change runtime type
Connected to Python 3 Google Compute Engine backend


Untitled10.ipynb
File Edit View Insert Runtime Tools Help All changes saved
Share
Files
+ Code + Text
RAM
Disk
Gemini
1 Start coding or generate with AI.
sample_data
Resources
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Manage sessions
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System RAM
1.1 / 12.7 GB
Disk
32.7 / 107.7 GB
Change runtime type
Change runtime type
Runtime type
Python 3
Hardware accelerator
CPU
T4 GPU
A100 GPU
L4 GPU
v2-8 TPU
v5e-1 TPU
Want access to premium GPUs? Purchase additional compute units
Cancel
Save
only for colab pro
can switch back and forth between python and R
Disk
75.06 GB available
Connected to Python 3 Google Compute Engine backend

+ Code + Text

Using bash scipt in coalab

single line bash script

```
! echo "hello the world"
```

```
hello the world
```

For mutiple bash script

```
%%shell
echo "hello the world" | grep -o "world"
echo "hello the world" | grep -o "hello"
```

```
world
hello
```

Run code R in python env

```
!pip install rpy2

# Import rpy2 and set up the magic
%load_ext rpy2.ipython
```

```
Requirement already satisfied: rpy2 in /usr/local/lib/python3.10/dist-packages (3.4.2)
Requirement already satisfied: cffi>=1.10.0 in /usr/local/lib/python3.10/dist-packages (from rpy2) (1.17.1)
Requirement already satisfied: jinja2 in /usr/local/lib/python3.10/dist-packages (from rpy2) (3.1.4)
Requirement already satisfied: pytz in /usr/local/lib/python3.10/dist-packages (from rpy2) (2024.2)
Requirement already satisfied: tzlocal in /usr/local/lib/python3.10/dist-packages (from rpy2) (5.2)
Requirement already satisfied: pycparser in /usr/local/lib/python3.10/dist-packages (from cffi>=1.10.0->rpy2) (2.22)
Requirement already satisfied: MarkupSafe>=2.0 in /usr/local/lib/python3.10/dist-packages (from jinja2->rpy2) (3.0.2)
The rpy2.ipython extension is already loaded. To reload it, use:
  %reload_ext rpy2.ipython
```

```
# Run R code
%%R
# Multi-line R code
x <- c(1, 2, 3, 4, 5)
y <- x^2
print(y)
```

```
[1]  1  4  9 16 25
```

Reference

Markdown	Preview
`**bold text**`	**bold text**
`*italicized text*` or `_italicized text_`	*italicized text*
`` `Monospace` ``	`Monospace`
`~~strikethrough~~`	~~strikethrough~~
`[A link](https://www.google.com)`	A link
`![An image](https://www.google.com/images/rss.png)`	

Headings are rendered as titles.

```
# Section 1
# Section 2
## Sub-section under Section 2
### Sub-section under the sub-section under Section 2
# Section 3
```

Section 1

Section 2

Sub-section under Section 2

Sub-section under the sub-section under Section 2

The table of contents, available on the left side of Colab, is populated using at most one section title from each text cell.

```
>One level of indentation
```

> One level of indentation

```
>>Two levels of indentation
```

> > Two levels of indentation

Code blocks

````
```python
print("a")
```
````

```python
print("a")
```

Ordered lists:

```
1. One
1. Two
1. Three
```

1. One
2. Two
3. Three

Unordered lists:

```
* One
* Two
* Three
```

- One
- Two
- Three

https://colab.research.google.com/notebooks/markdown_guide.ipynb#scrollTo=Lhfnlq1Surtk

- One
- Two
- Three

Equations:

```
$y=x^2$

$e^{i\pi} + 1 = 0$

$e^x=\sum_{i=0}^\infty \frac{1}{i!}x^i$

$\frac{n!}{k!(n-k)!} = {n \choose k}$

$A_{m,n} =
 \begin{pmatrix}
  a_{1,1} & a_{1,2} & \cdots & a_{1,n} \\
  a_{2,1} & a_{2,2} & \cdots & a_{2,n} \\
  \vdots  & \vdots  & \ddots & \vdots  \\
  a_{m,1} & a_{m,2} & \cdots & a_{m,n}
 \end{pmatrix}$
```

$y = x^2$

$e^{i\pi} + 1 = 0$

$e^x = \sum_{i=0}^{\infty} \frac{1}{i!}x^i$

$\frac{n!}{k!(n-k)!} = \binom{n}{k}$

$$A_{m,n} = \begin{pmatrix} a_{1,1} & a_{1,2} & \cdots & a_{1,n} \\ a_{2,1} & a_{2,2} & \cdots & a_{2,n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m,1} & a_{m,2} & \cdots & a_{m,n} \end{pmatrix}$$

Tables:

```
First column name  | Second column name
-------------------|-------------------
Row 1, Col 1       | Row 1, Col 2
Row 2, Col 1       | Row 2, Col 2
```


graphql
hooks
lib
node_modules library root
pages
admin
api
_app.tsx
_document.tsx
about.tsx
index.tsx
public
tests
utils
theme.ts
.babelrc
.env.example
.env.local
.eslintrc.js
.gitignore
next-env.d.ts
package.json
README.md
tsconfig.json
yarn.lock
External Libraries
Scratches and Consoles
import CssBaseline from '@material-ui/core/CssBaseline'; 61.61 kB (gzip: 20.02 kB)
import { Container } from '@material-ui/core'; 63.32 kB (gzip: 20.38 kB)
import { useApollo } from '../graphql/client';
import { lightTheme, darkTheme } from '../utils/theme';
import useLocalStorage from '../hooks/useLocalStorage';
import NavBar from '../components/NavBar';
function App({ Component, pageProps }: AppProps) {
const [currentTheme, setCurrentTheme] = useLocalStorage(key: 'theme-value', initialValue: 'light');
const apolloClient = useApollo(pageProps.initialApolloState);
const jssStyles = document.querySelector(selectors: '#jss-server-side');
if (jssStyles) {
jssStyles.parentElement.removeChild(jssStyles);
}
}, deps: []);
return (
<>
<Head>
<title>ECU-DEV</title>
<meta name="viewport" content="minimum-scale=1, initial-scale=1, width=device-wi
</Head>
<ThemeProvider theme={currentTheme === 'light' ? lightTheme : darkTheme}>
<ApolloProvider client={apolloClient}>
<CssBaseline />
<Container>

Thank you