3099704: AI for Digital Health

MLOps

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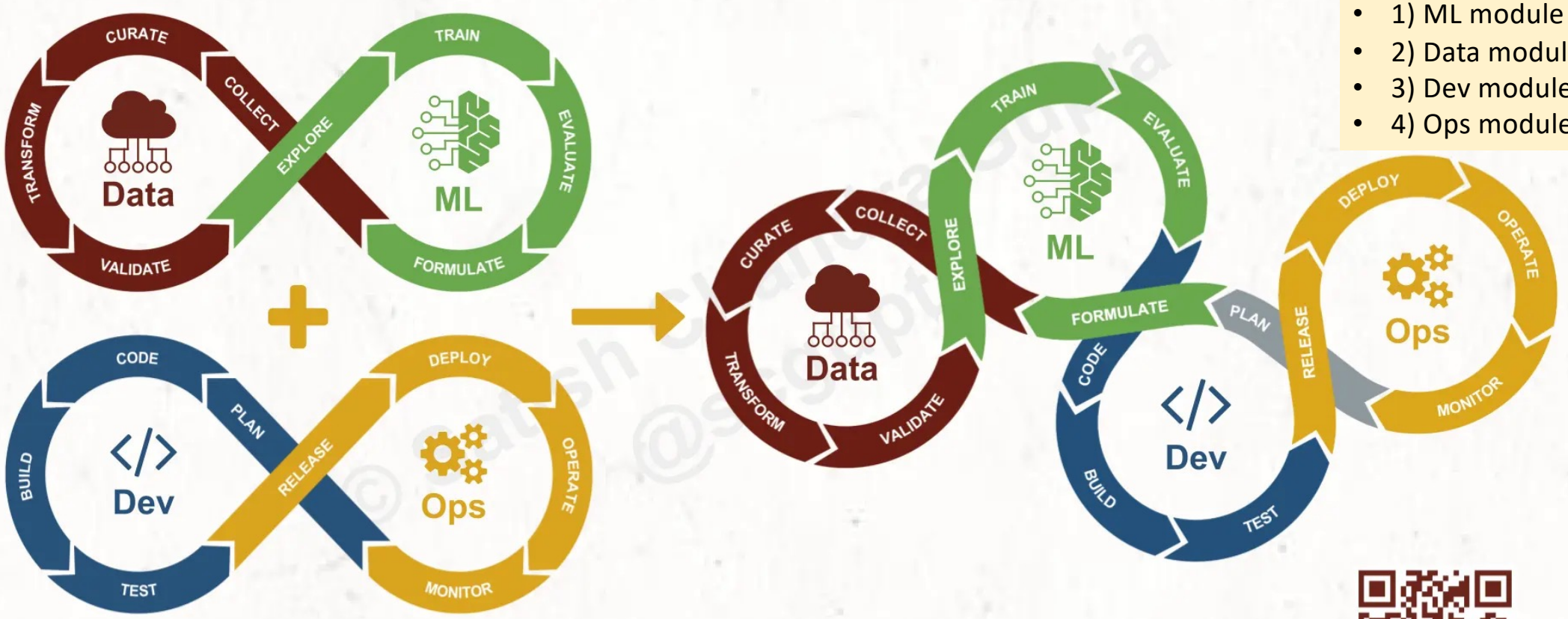
MLOps = DataML + DevOps

ml4devs.com/mlops-lifecycle



- 1) ML module
- 2) Data module
- 3) Dev module
- 4) Ops module

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https://www.ml4devs.com/images/illustrations/ml-lifecycle-fusing-model-and-software-development.webp

scgupta.me
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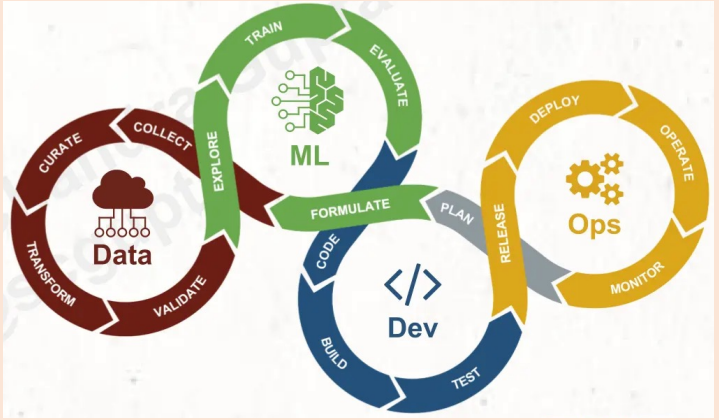
Dev Module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Do you think that user (doctors & patients) can use this code to get the prediction result? NO!!!

2_Linear-Regression-v2.ipynb

File Edit View Insert Runtime Tools Help

+ Code + Text Copy to Drive

```
[ ]  1 coeff_df = pd.DataFrame(lm.coef_,lm.feature_names_in_,columns=['Coefficient'])
     2 coeff_df
```

Does this make sense? Probably not because I made up this data. If you want real data to repeat this sort of analysis, check out the boston dataset:

```
from sklearn.datasets import load_boston
boston = load_boston()
print(boston.DESCR)
boston_df = boston.data
```

Predictions from our Model

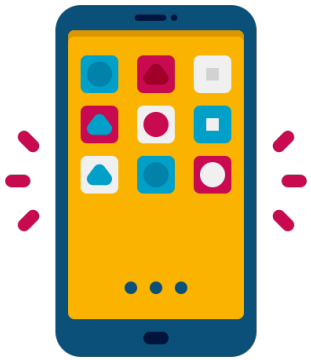
Let's grab predictions off our test set and see how well it did!

```
[ ]  1 predictions = lm.predict(X_test)
```

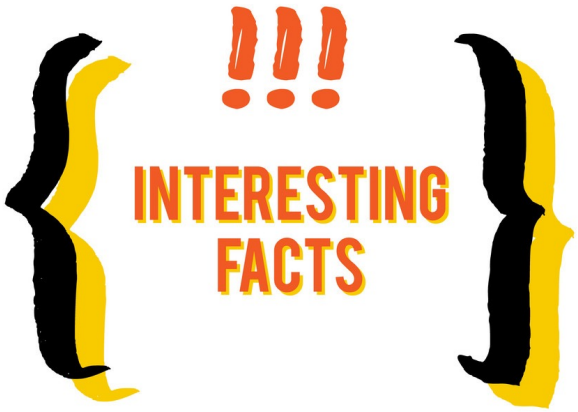
```
[ ]  1 plt.scatter(y_test,predictions)
```

Residual Histogram

```
[ ]  1 sns.distplot((y_test-predictions),bins=50);
```



Interesting facts



- More than 50% of AI projects were FAILED since they didn't plan about the deployment.

For the AI project, finish building the model is only 50% of the work.

The remaining work is about the deployment as a touchpoint to the target user.

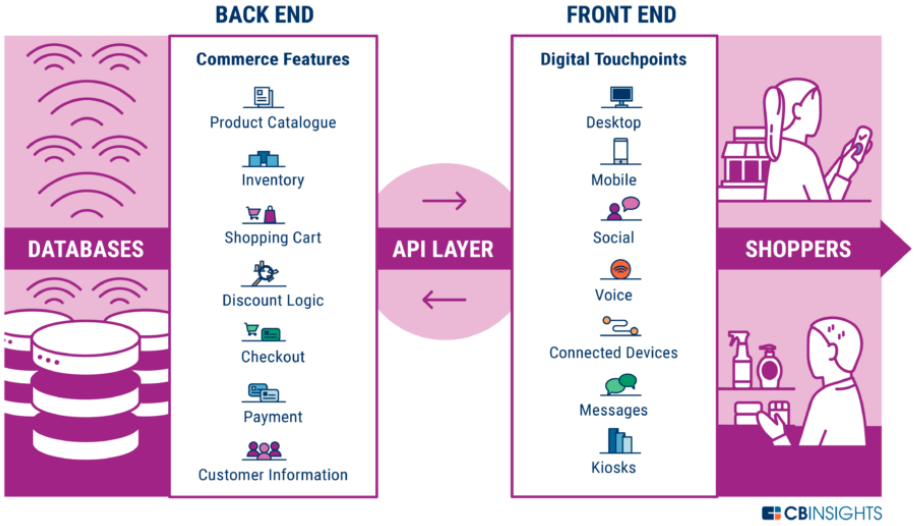
Guideline for the dev module

- More than 50% of AI projects were FAILED since they didn't plan about the deployment.

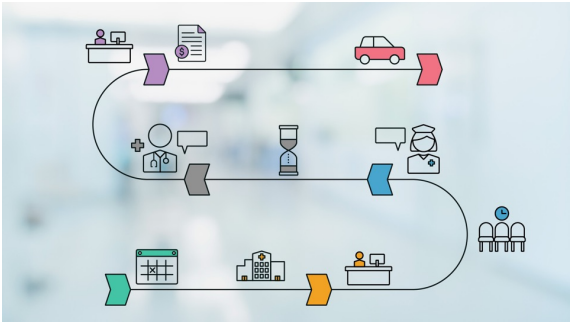
- 1) Understand who is the target user first?
- 2) Action: Knowledge (Model) without action (Software) is meaningless. (API & Integration)
- 3) User Touch Point & Journey: simple & easy-to-use
- 4) Don't forget about the admin tasks

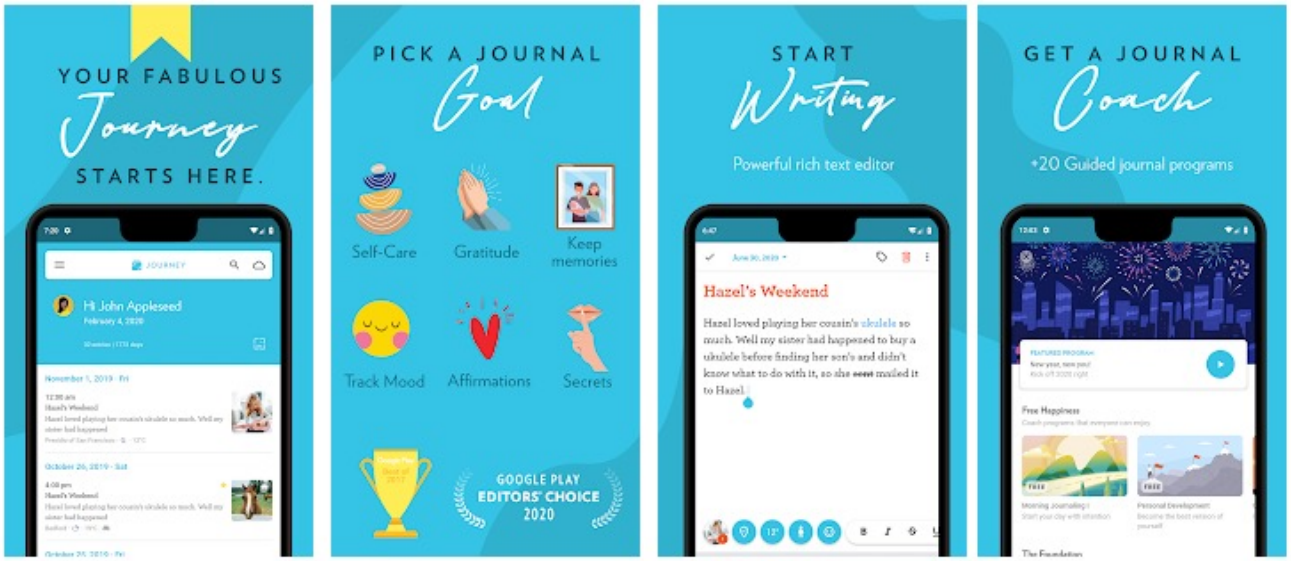
1) Understand who is the target user first?
E.g., patients, healthcare staff, or caregivers

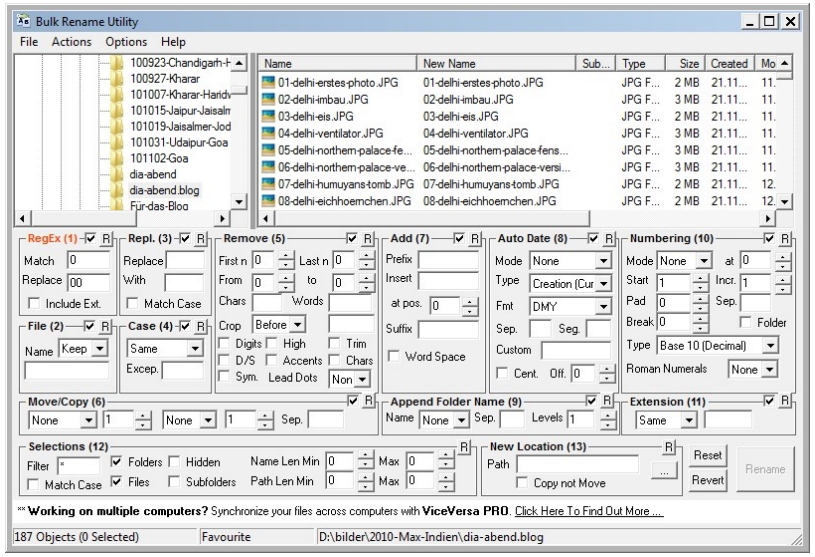
2) Action: Knowledge (Model) without action (Software) is meaningless. (API & Integration)



3) User Touch Point & Journey: simple & easy-to-use

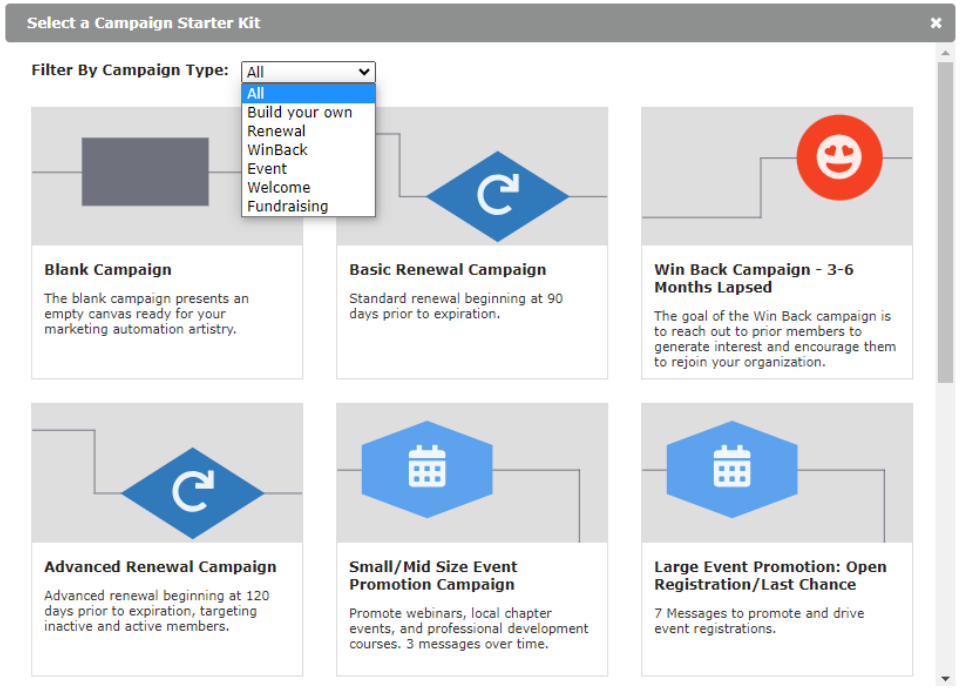


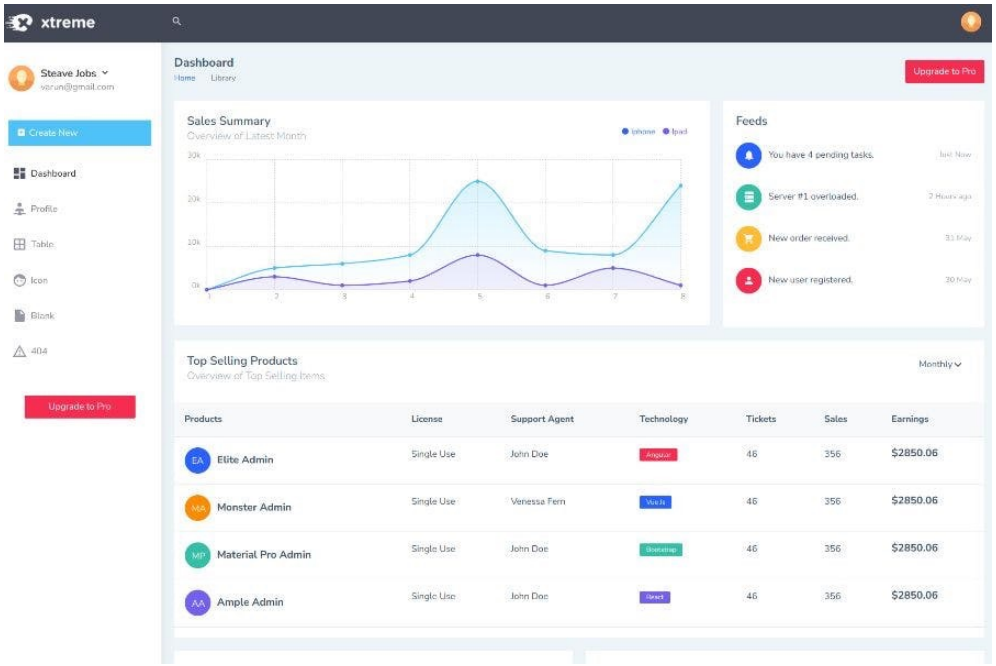




4) Don’t forget about the admin tasks

Always take administrative works into account





Guideline for the dev module (recap)

- More than 50% of AI projects were FAILED since they didn't plan about the deployment.

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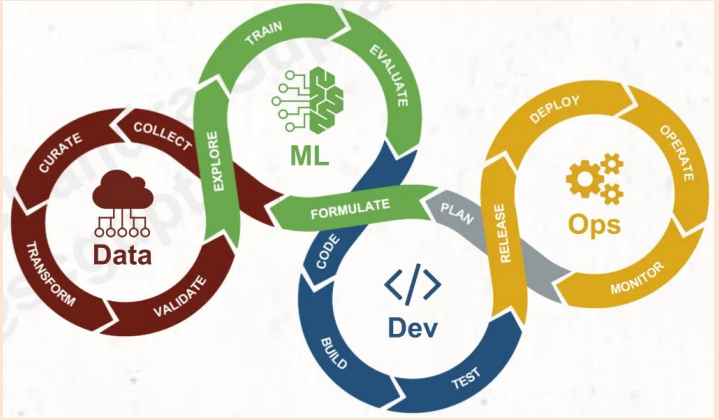
Ops Module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Guideline for the ops module

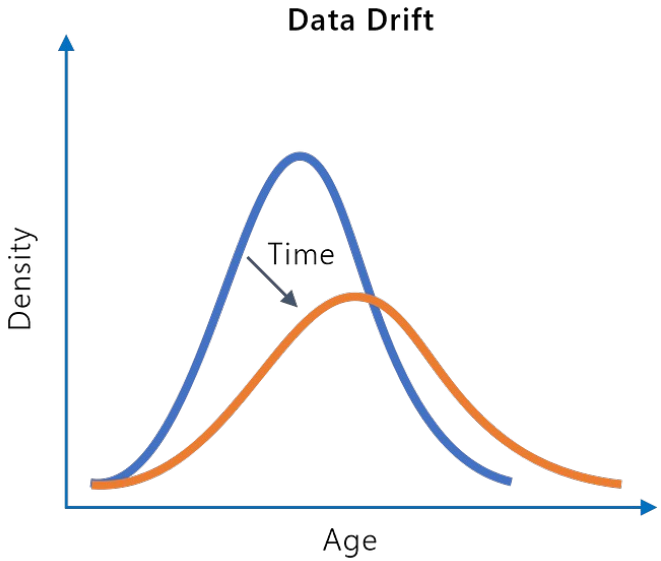
- MLOps (Ops = Operations)
- Release (versioning), configure, monitor

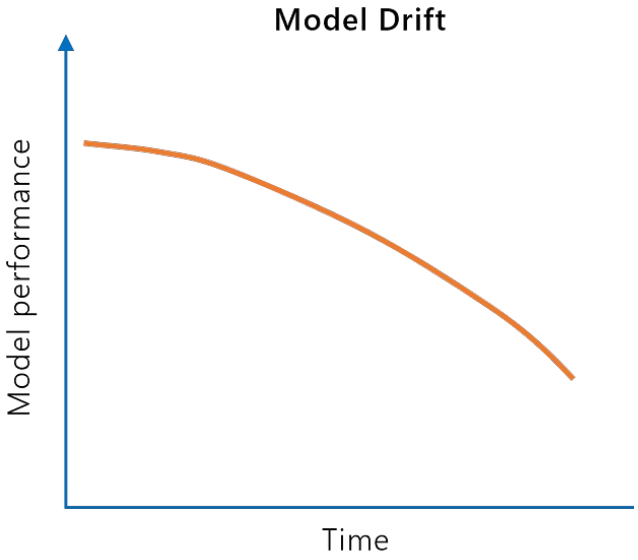
- 1) Monitoring: operation and performance
- 2) Model is not stationary and always needed to be retrained.
- 3) BI Dashboard can help to summarize the collected data.

1) Monitoring

- Operation monitoring

- Performance monitoring





2) Model is not stationary and always needed to be retrained.

Patient behavior can change over time.

3) BI Dashboard can help to summarize the collected data.

Guideline for the ops module (recap)

- MLOps (Ops = Operations)
- Release (versioning), configure, monitor

- 1) Monitoring: operation and performance
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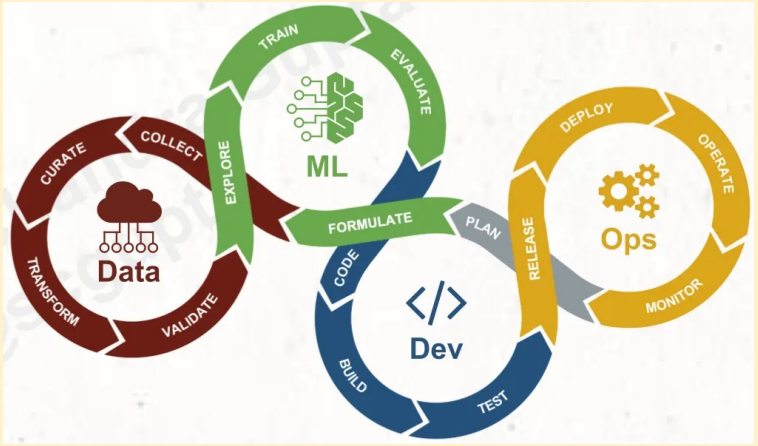
- 3) BI Dashboard can help to summarize the collected data.

Thank you &
Any questions



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