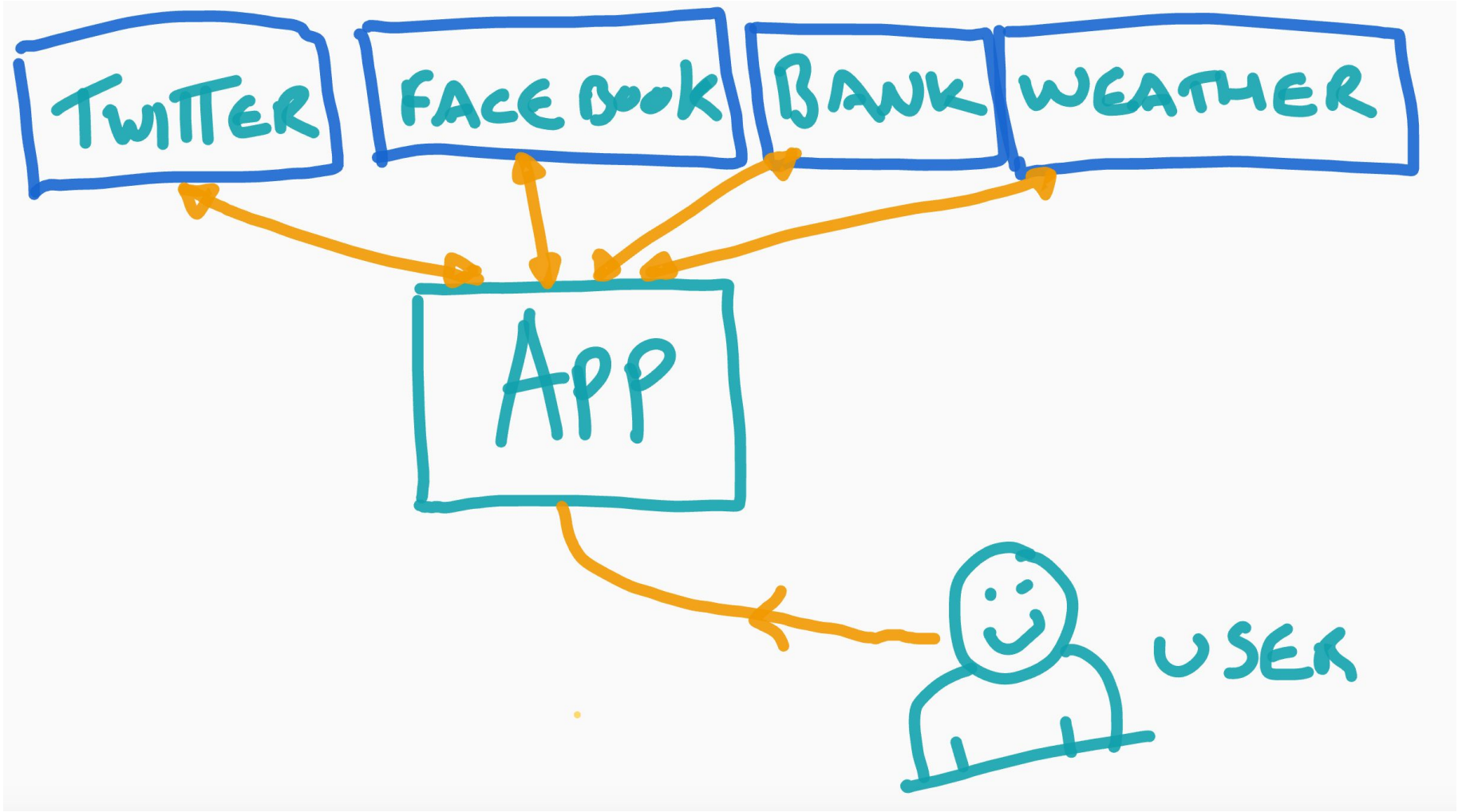
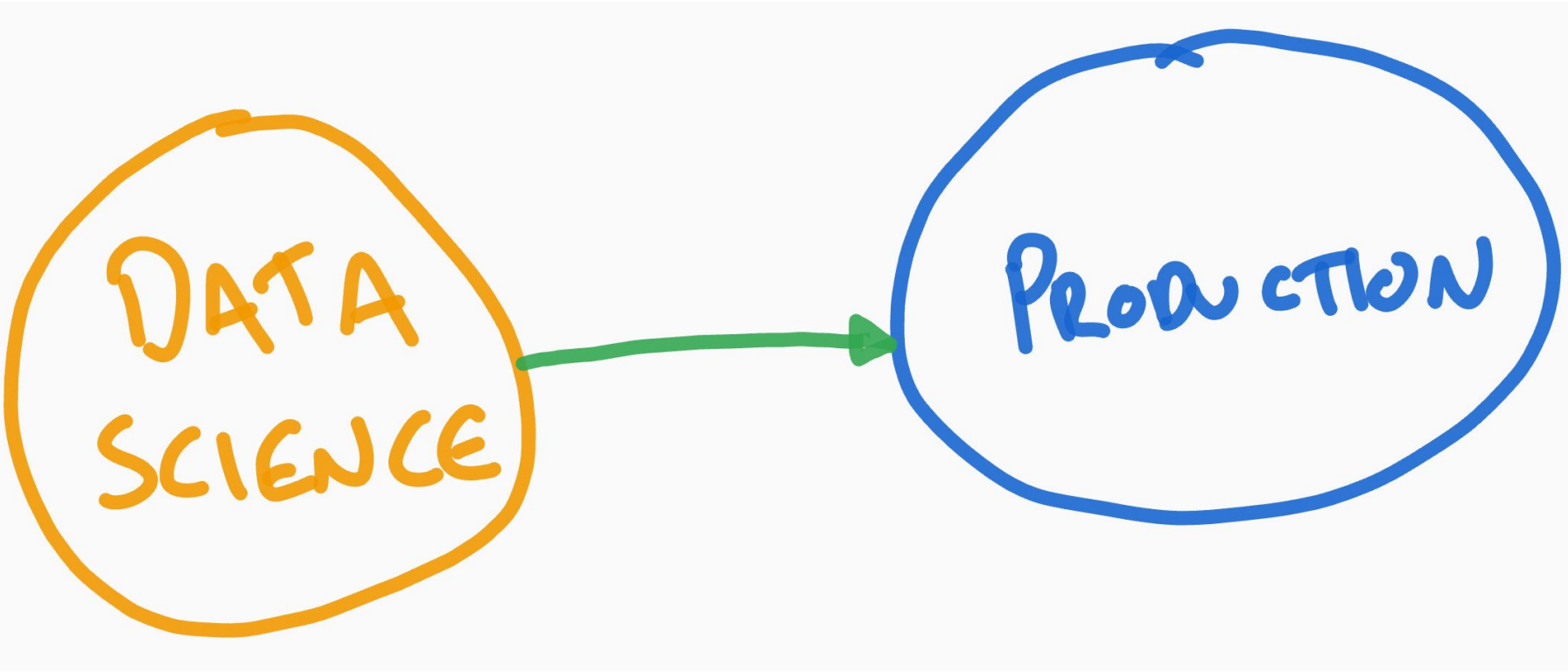
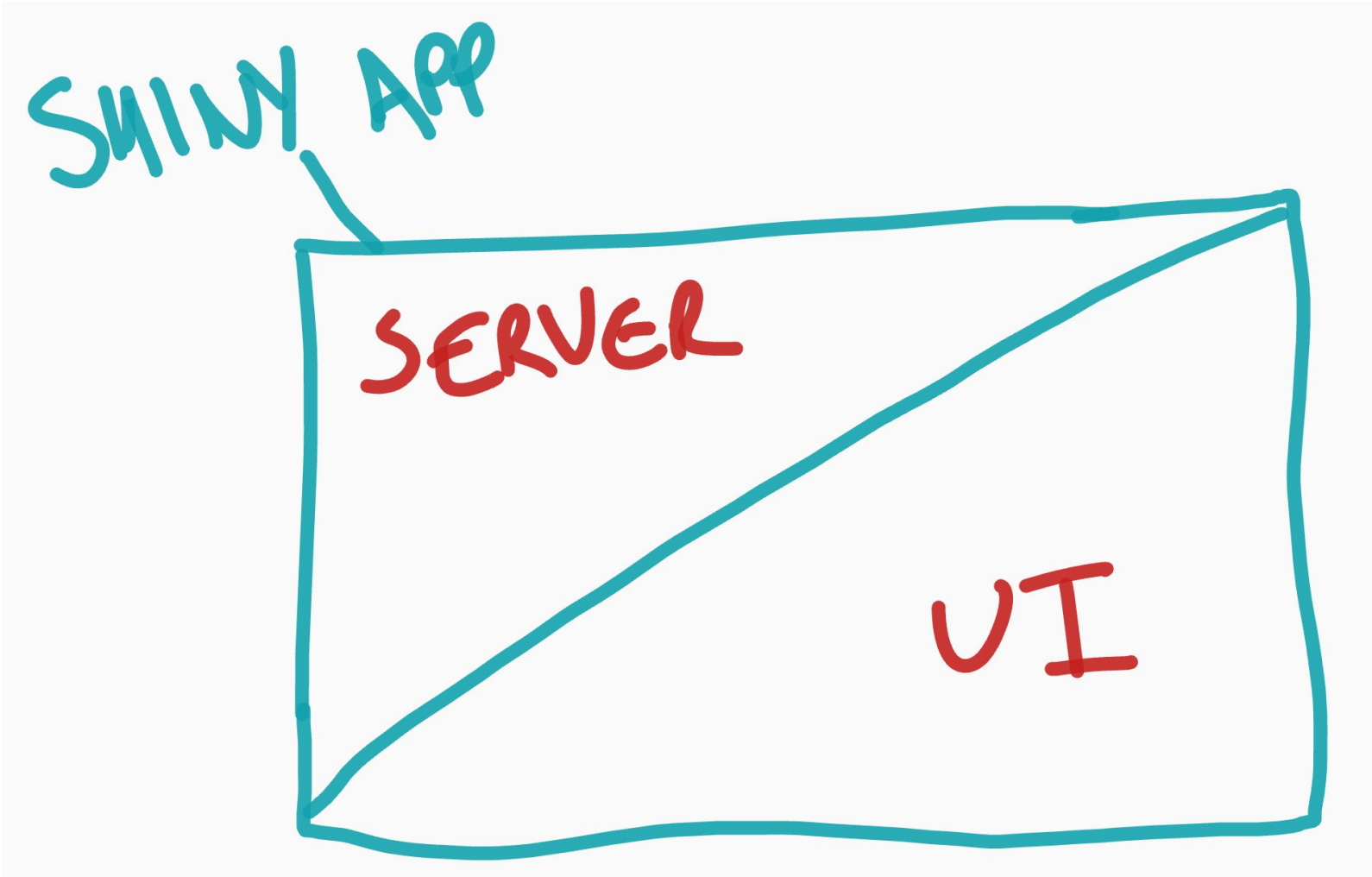
APIs in R with plumber!

by @sellorm

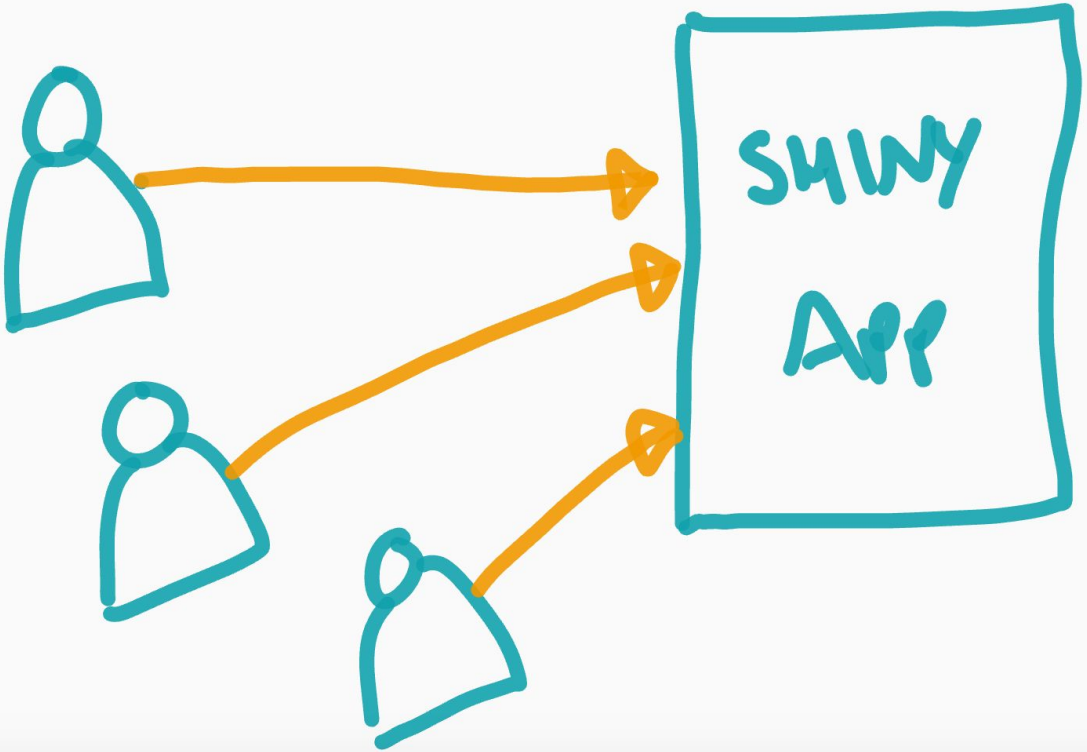
WHAT'S AN API?

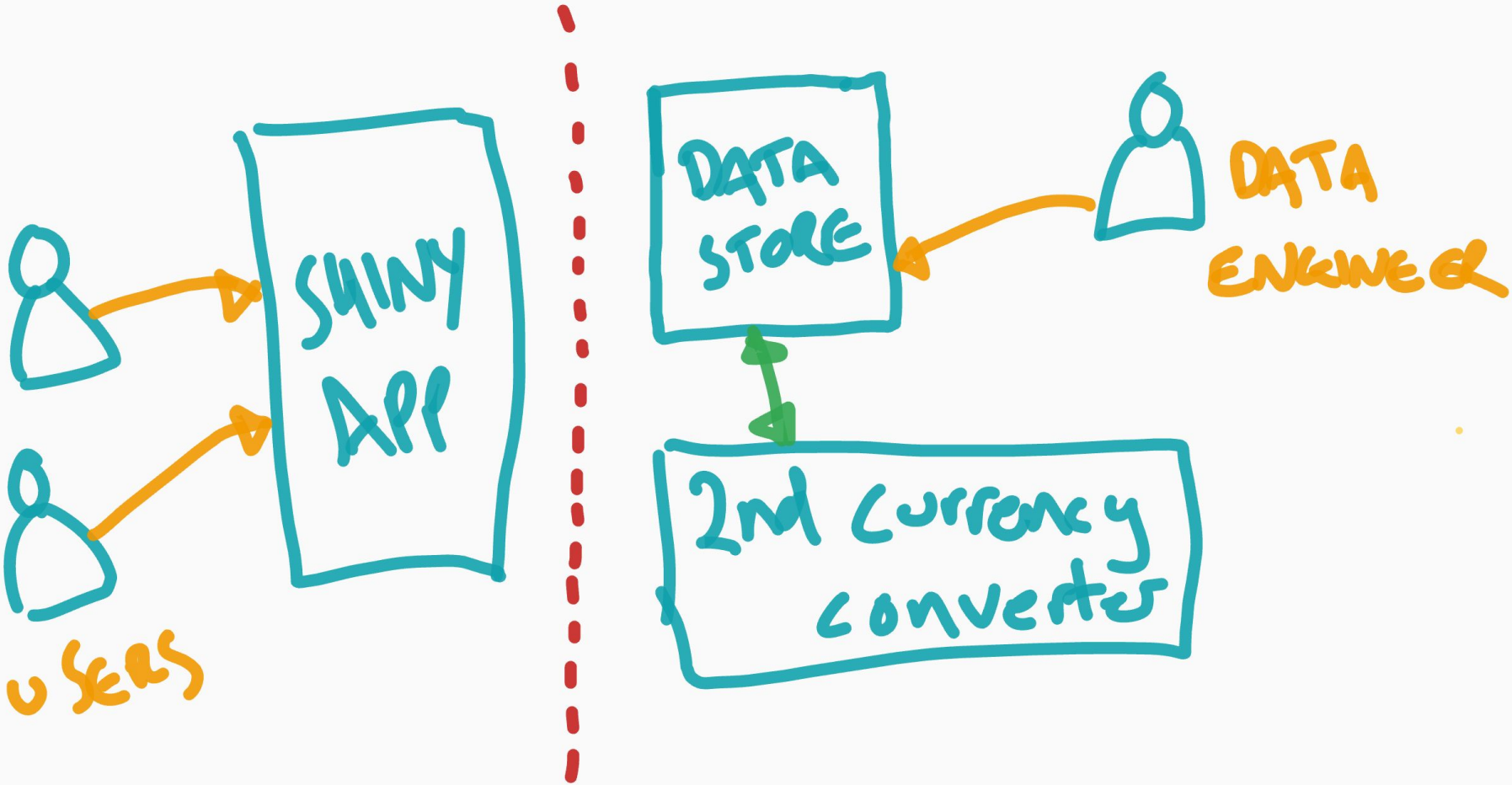

TWITTER
FACEBOOK
BANK
WEATHER
APP
USER

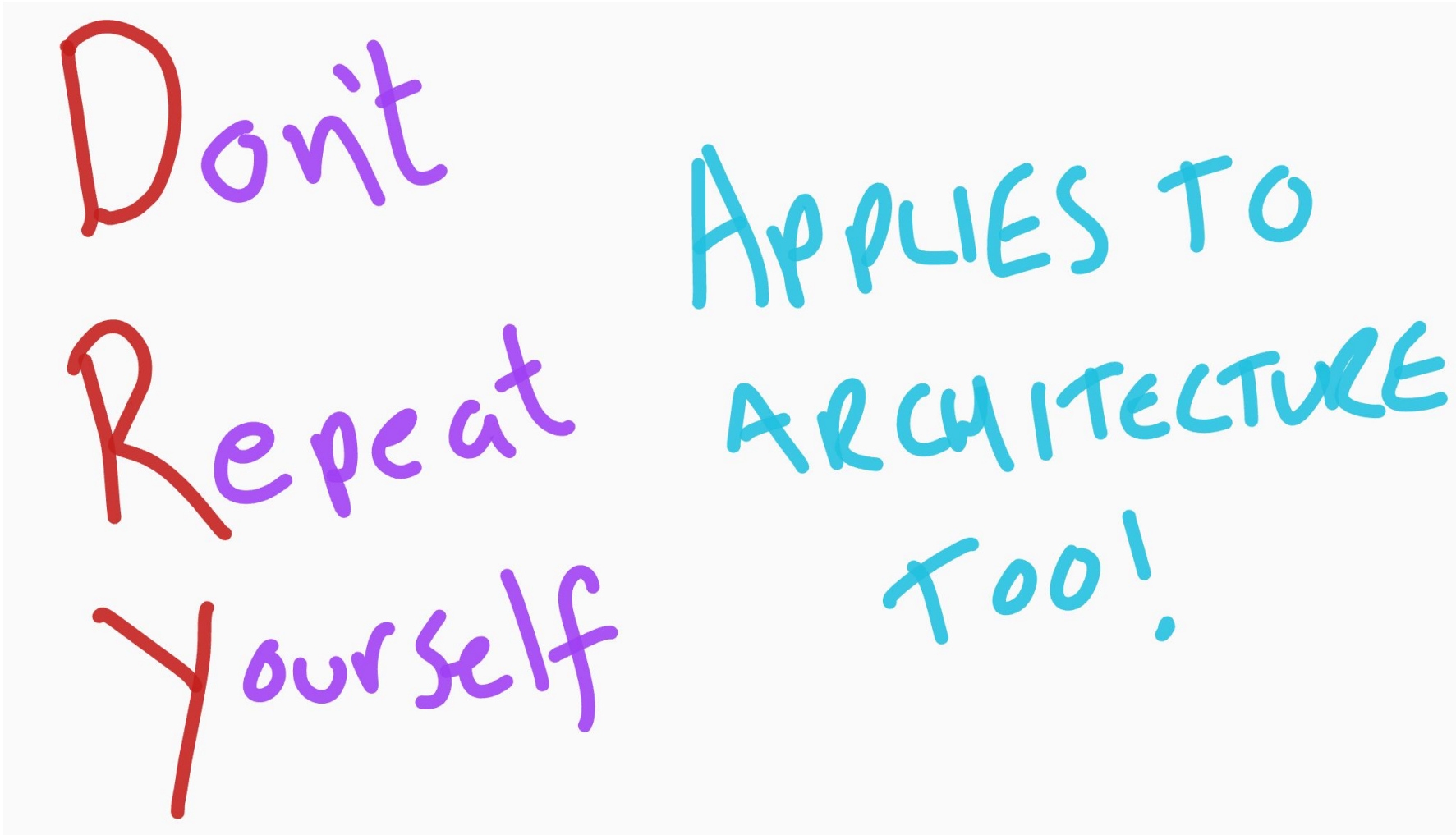

DATA SCIENCE
PRODUCTION


SHINY APP
SERVER
UI

Currency Converter




SHINY APP
USERS
DATA STORE
DATA ENGINEER
2nd currency converter


Don't
Repeat
Yourself
Applies to
architecture
too!

FUNCTION:

RE-USABLE COMPONENT

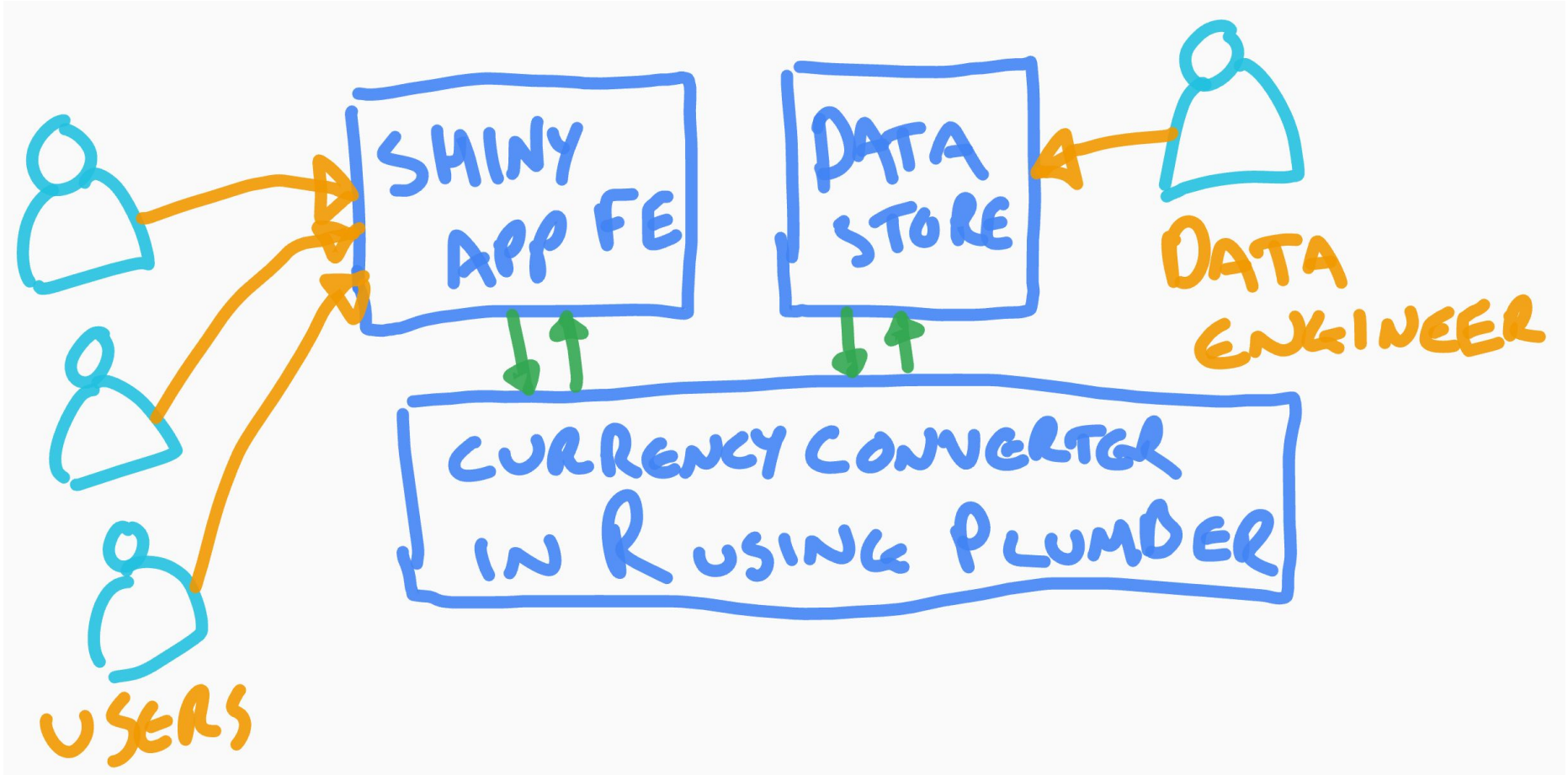
INSIDE AN APPLICATION

WEB API:

RE-USABLE COMPONENT

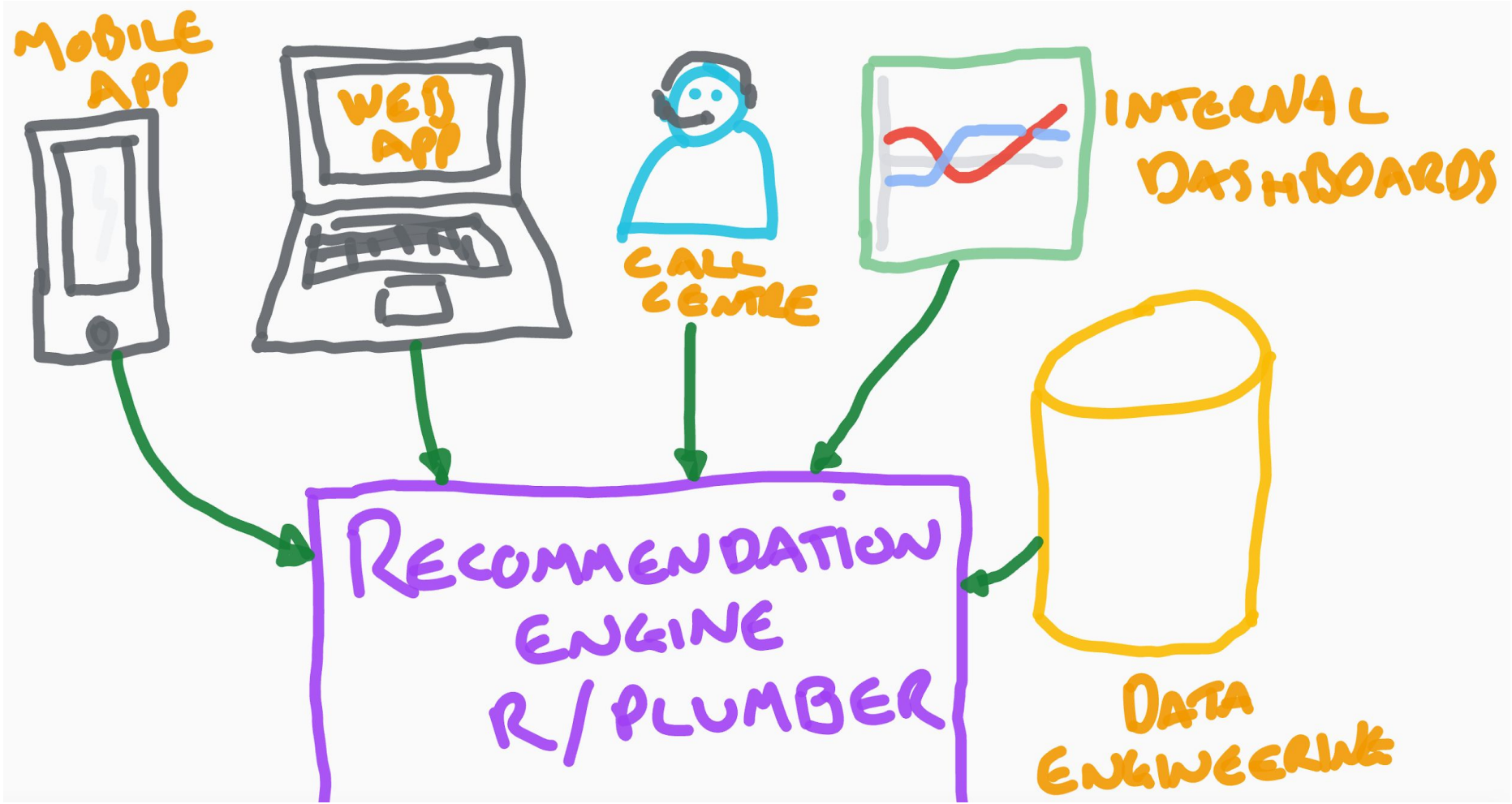
NOT COUPLED TO A

SPECIFIC APPLICATION


SHINY APP FE
DATA STORE
DATA ENGINEER
CURRENCY CONVERTOR IN R USING PLUMBER
USERS

How Do We Make That Happen?


#` @get /endpoint


MOBILE APP
WEB APP
CALL CENTRE
INTERNAL DASHBOARDS
RECOMMENDATION ENGINE R/PLUMBER
DATA ENGINEERING

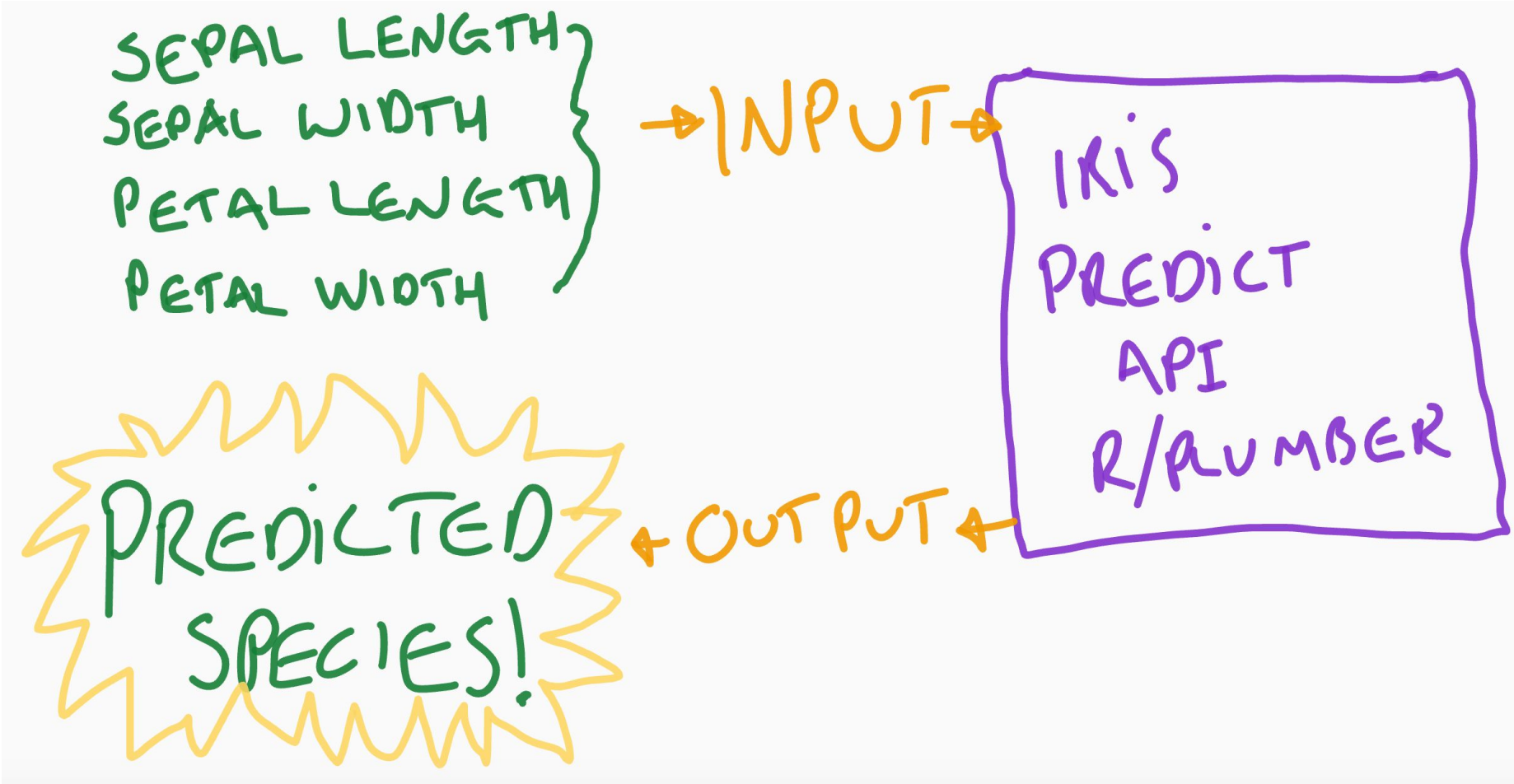
Plumber outputs:

- JSON
- HTML
- IMAGES

ANOTHER EXAMPLE

YES, IT'S AN IRIS! ¯_(ツ)_/¯

IRIS SPECIES PREDICTION API


SEPAL LENGTH
SEPAL WIDTH
PETAL LENGTH
PETAL WIDTH
INPUT
IRIS
PREDICT
API
R/RUMBER
OUTPUT
PREDICTED
SPECIES!

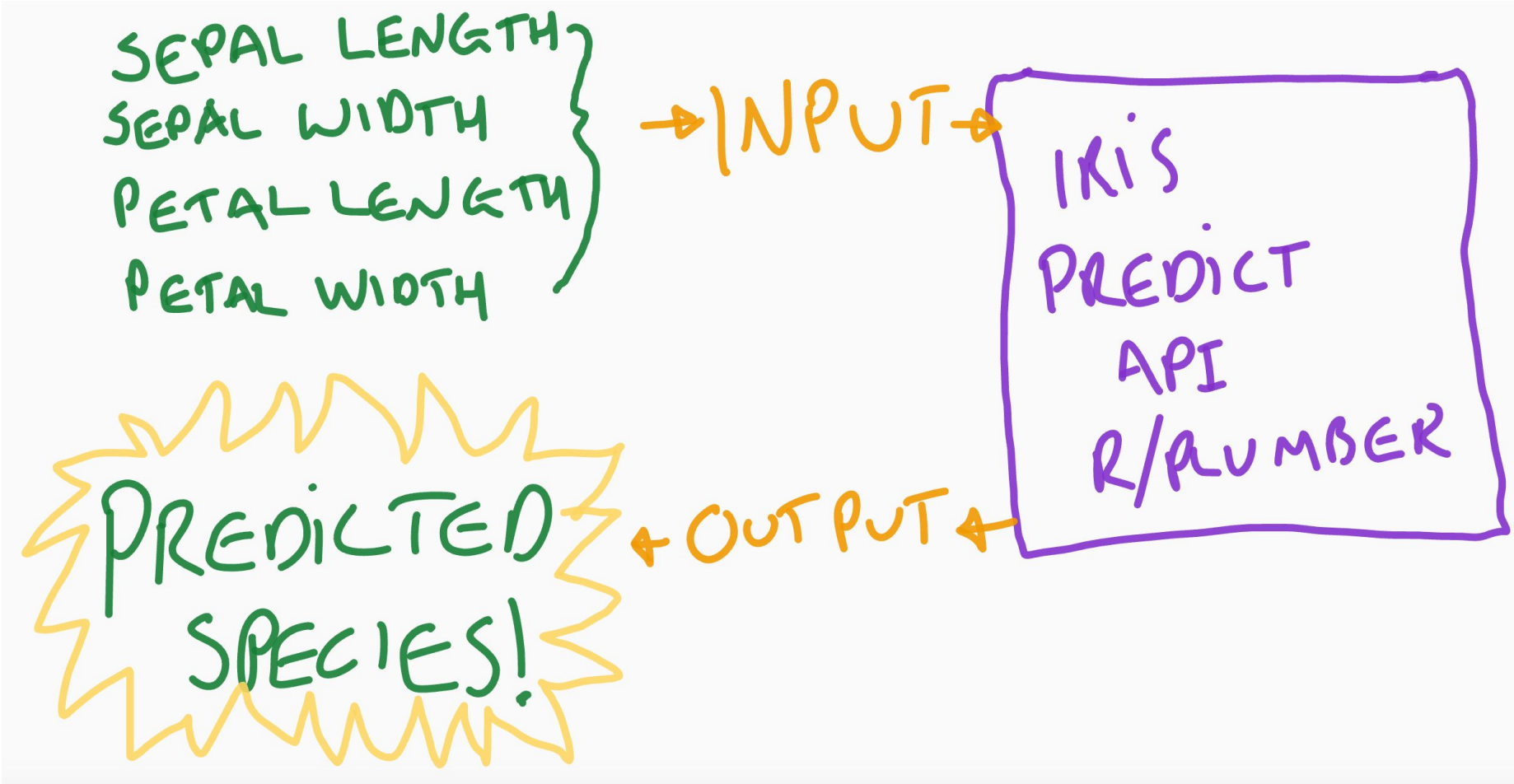
```r
fit.lda <- readRDS("./iris.fit.lda.rds")

#* @get /predict
function(Sepal.Length,Sepal.Width,Petal.Length,Petal.Width){
  inputData <- list("Sepal.Length"=as.double(Sepal.Length),
                    "Sepal.Width"=as.double(Sepal.Width),
                    "Petal.Length"=as.double(Petal.Length),
                    "Petal.Width"=as.double(Petal.Width))
  predict(fit.lda, inputData)
}
```

```
r <- plumber::plumb("iris-api.R")
r$run(port=5000)
```

```
#!/usr/bin/env bash
set -eu
echo -n "Should get 'setosa'     - API returns: "
curl -s 'http://localhost:5000/predict?Sepal.Length=5.5&Sepal.Width=4.2&Petal.Length=1.4&Petal.Width=0.2'
echo
echo -n "Should get 'versicolor' - API returns: "
curl -s 'http://localhost:5000/predict?Sepal.Length=5.4&Sepal.Width=3.0&Petal.Length=4.5&Petal.Width=1.5'
echo
echo -n "Should get 'virginica'  - API returns: "
curl -s 'http://localhost:5000/predict?Sepal.Length=5.9&Sepal.Width=3.0&Petal.Length=5.1&Petal.Width=1.8'
echo
exit 0
```

```
sellorm $ ./test-iris-api.sh
Should get 'setosa'     - API returns: ["setosa"]
Should get 'versicolor' - API returns: ["versicolor"]
Should get 'virginica'  - API returns: ["virginica"]
```


SEPAL LENGTH
SEPAL WIDTH
PETAL LENGTH
PETAL WIDTH
INPUT
IRIS
PREDICT
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R/RUMBER
OUTPUT
PREDICTED
SPECIES!

SUMMARY:

- CREATE WEB ACCESSIBLE FUNCTIONS
- ACCESS FROM OTHER APPS
- IF YOU CAN WRITE A FUNCTION IN R
  YOU CAN USE PLUMBER
- HOSTING APIs IS HARDER
- ITS A LOT OF FUN!


THANKS!
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@sellorm