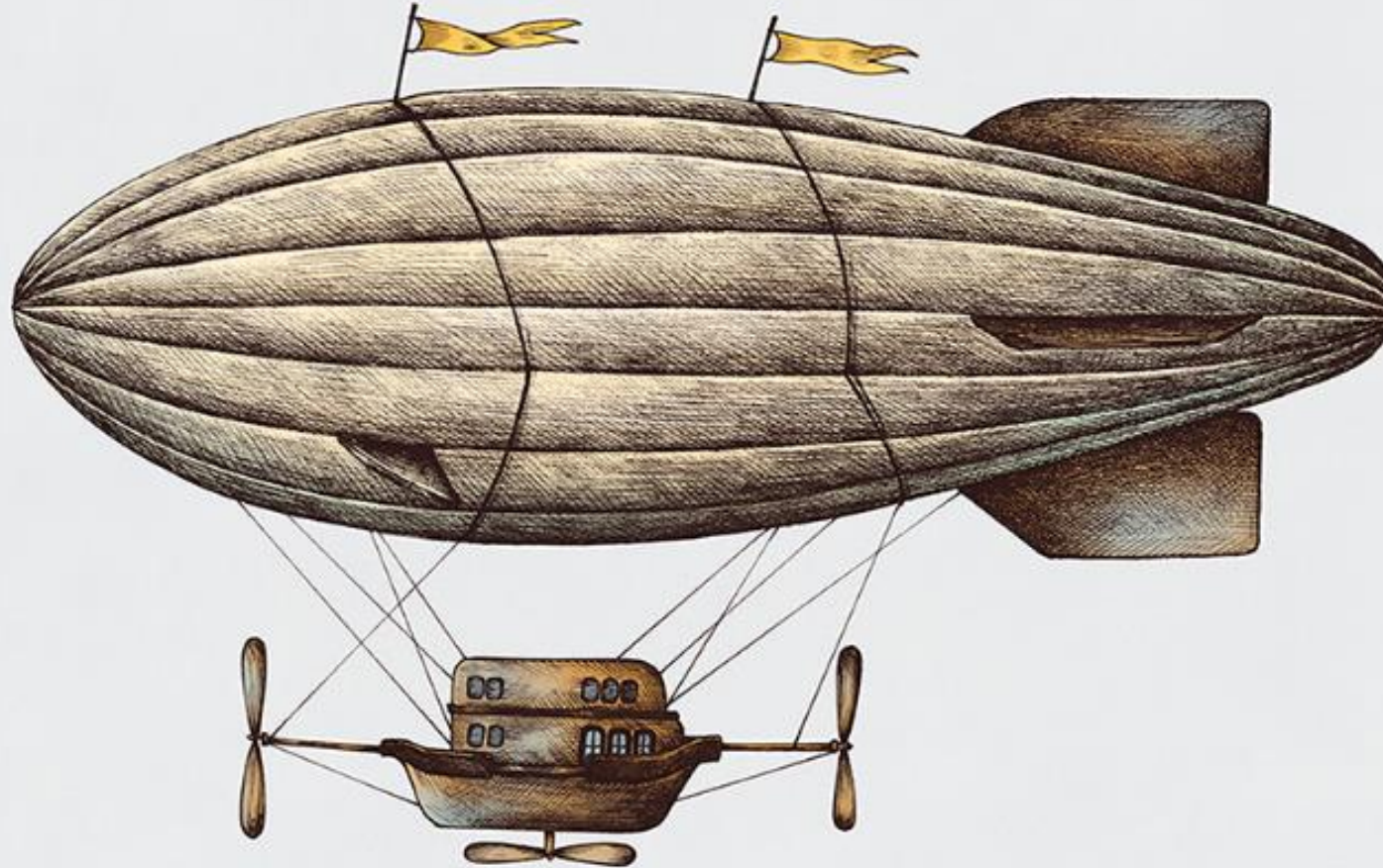


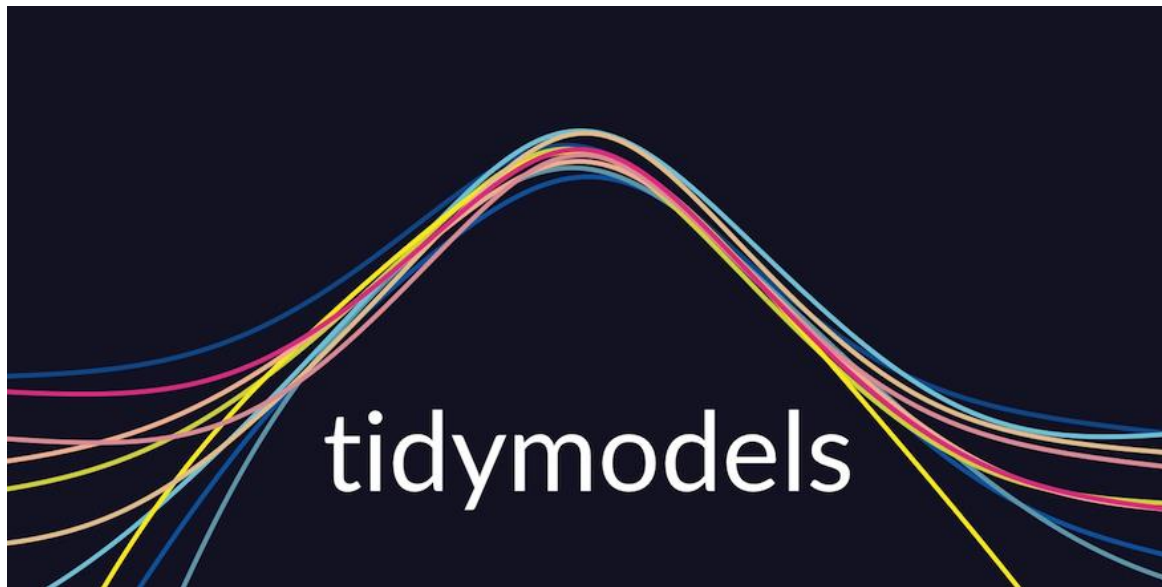
A quick flight to the edge of Data Science



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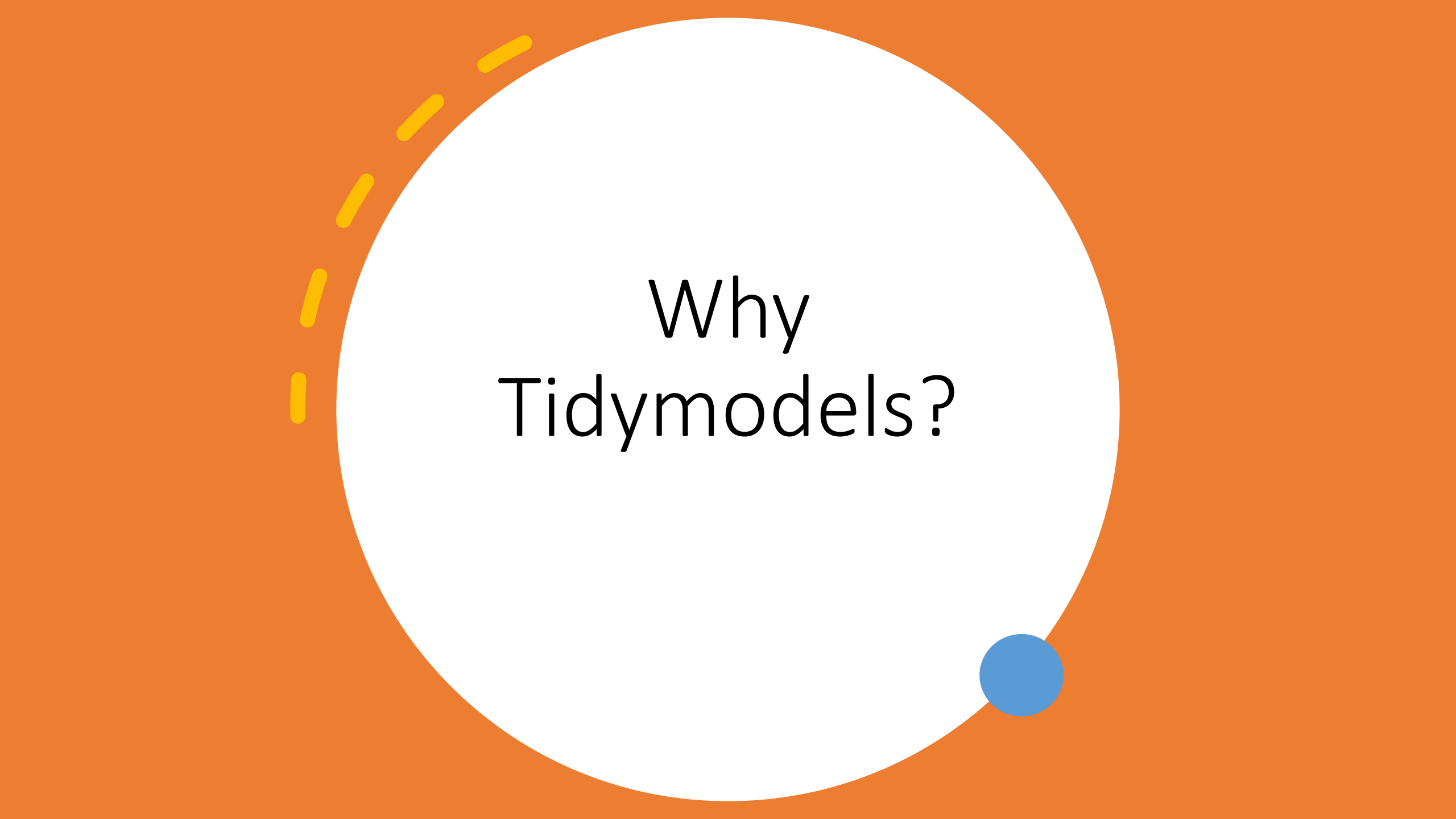
Modeling and Machine Learning with Tidymodels

There are many
modeling packages in R
and then there is



Modeling
framework that
allows you to build
upon existing R
packages





Why
Tidymodels?

1. We are all on the same team



unified interface
to underlying
packages that do
the same thing

```
# From ranger
rf_2 <- ranger(
  y ~ .,
  data = dat,
  mtry = 10,
  num.trees = 2000,
  importance = "impurity"
)
```

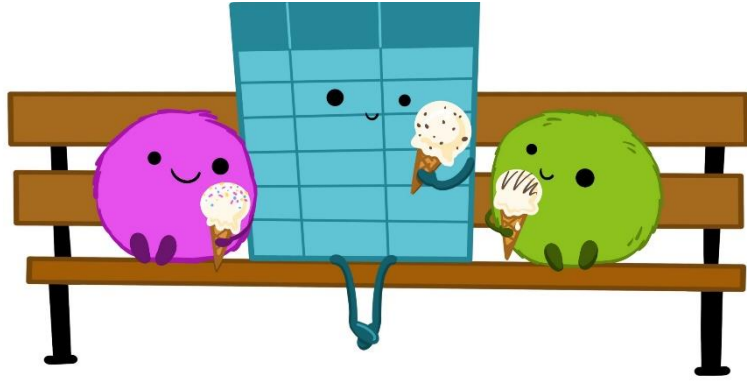
```
# From sparklyr
rf_3 <- ml_random_forest(
  dat,
  intercept = FALSE,
  response = "y",
  features = names(dat)[names(dat) != "y"],
  col.sample.rate = 10,
  num.trees = 2000
)
```

```
# From randomForest
rf_1 <- randomForest(
  y ~ .,
  data = .,
  mtry = 10,
  ntree = 2000,
  importance = TRUE
)
```

Model spec in tidymodels

```
rf <- rand_forest(mtry = 10, trees = 2000) %>%
  set_mode("regression") %>%
  set_engine("____")
```

2. Returns our good old tibbles



```
## # A tibble: 6 x 4
##       a      b      c lambda
##   <dbl> <dbl> <dbl>   <dbl>
## 1 0.333 0.333 0.333     1
## 2 0.333 0.333 0.333     1
## 3 0.333 0.333 0.333    0.1
## 4 0.333 0.333 0.333    0.1
## 5 0.373 0.244 0.383    0.01
## 6 0.327 0.339 0.334    0.01
```

```
predict(three_class_mod, newx = new_x,
        type = "response")
```

```
## , , s0
##
##           a      b      c
## sample_1 0.333 0.333 0.333
## sample_2 0.333 0.333 0.333
##
## , , s1
##
##           a      b      c
## sample_1 0.333 0.333 0.333
## sample_2 0.333 0.333 0.333
##
## , , s2
##
##           a      b      c
## sample_1 0.373 0.244 0.383
## sample_2 0.327 0.339 0.334
```


3. Additional tools for creating effective and high-quality models

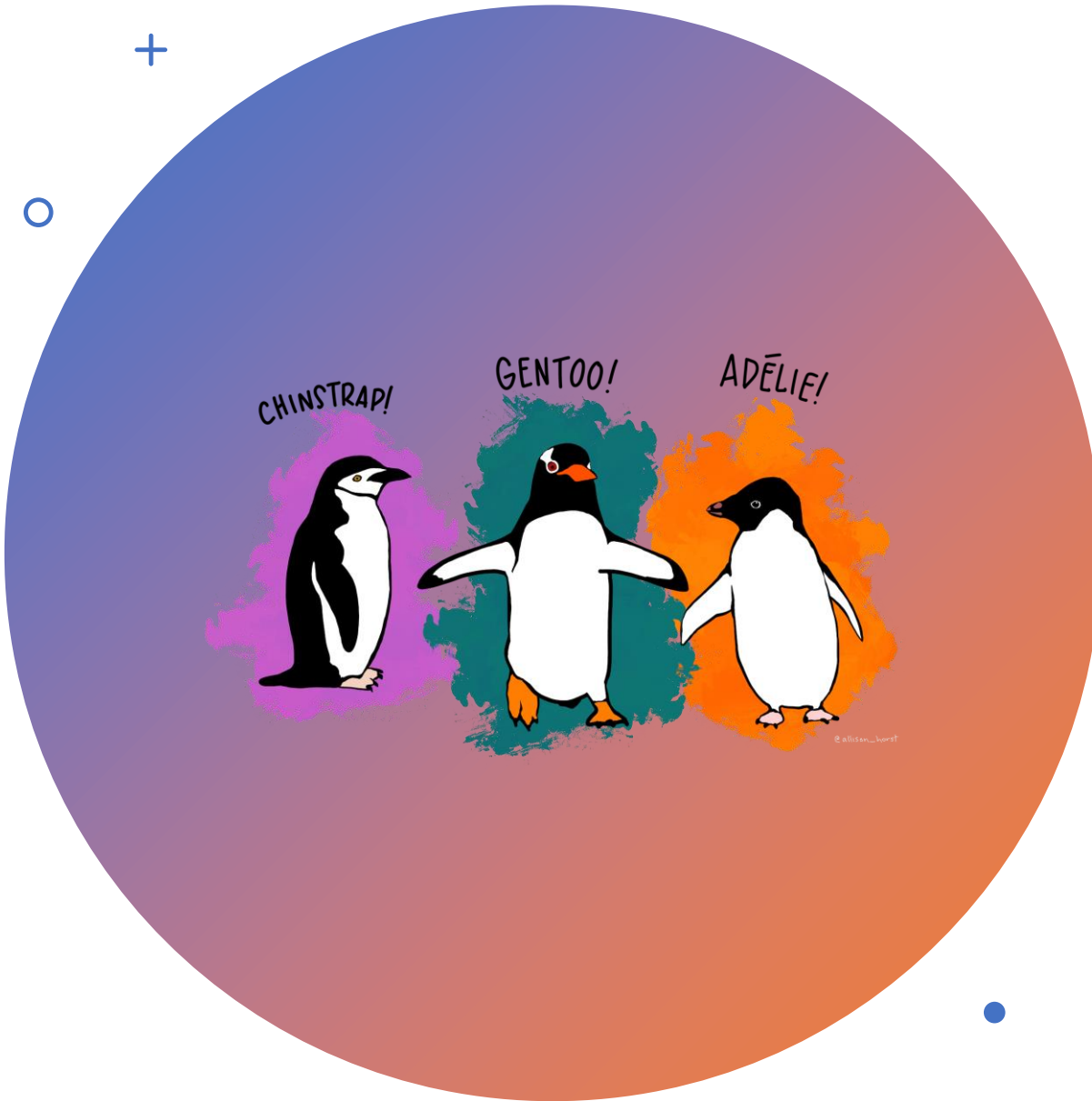


Splitting data

Feature Engineering

Model performance

Classifying penguins.



- Build and fit a random forest model
- Use the model to classify
- Try out a different engine

Knowledge Check

You plan to use the Tidymodels framework to train a model. What information would you need to make a model specification? (there are multiple answers)

- A. Model Engine
- B. Model Mode
- C. Model Recipe
- D. Model Type

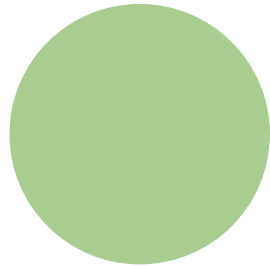
Knowledge Check

You plan to use the Tidymodels framework to train a model. What information would you need to make a model specification?

- A. Model Engine: is the R package which will be used to fit the model
- B. Model Mode: includes common options like regression and classification
- C. Model Recipe: A recipe is an object that defines a series of steps for data processing.
- D. Model Type: differentiates models such as logistic regression, decision tree models

Q. What's a
penguin's
favorite
movie?

Frozen



Recap & Further Reading

- ✓ What is the Tidymodels framework?
 - ✓ How Tidymodels eases modeling for practitioners from diverse backgrounds.
 - ✓ Building models using Tidymodels framework.
-
- Max Kuhn and Julia Silge, [*Tidy Modeling with R*](#).
 - [*Max Kuhn talk*](#) – Cleveland RUG
 - Tidymodels [reference website](#).
 - Bradley Boehmke & Brandon Greenwell, [*Hands-On Machine Learning with R*](#).
 - H. Wickham and G. Grolemund, [*R for Data Science: Visualize, Model, Transform, Tidy, and Import Data*](#).

