

THE K-MEANS ALGORITHM

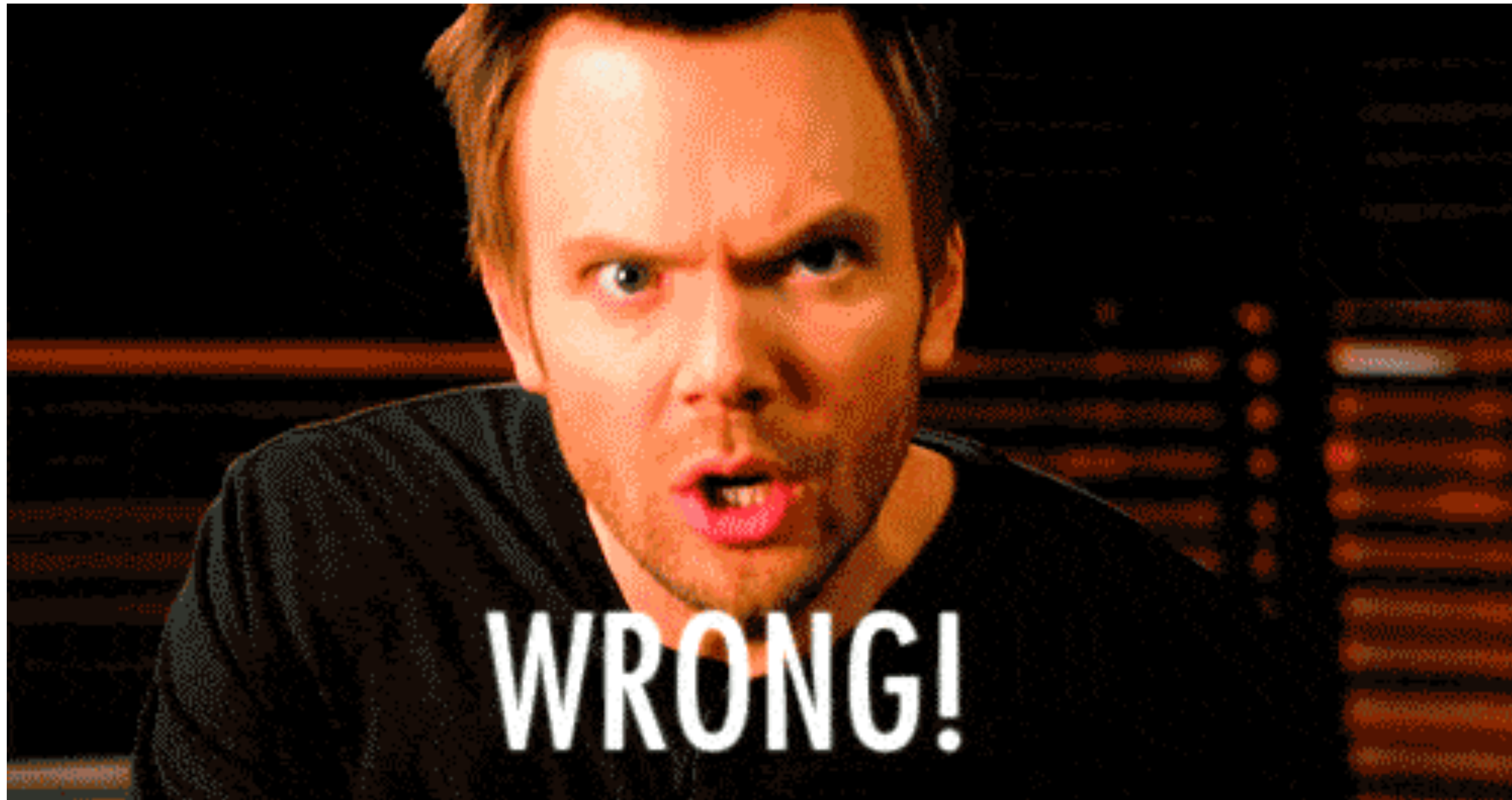
A man with a shocked expression, wide eyes, and an open mouth, looking directly at the camera. He is wearing a dark shirt. The background is dark and out of focus, showing some horizontal lines and a grid of small, glowing points.

WRONG!

A close-up photograph of a man with light brown hair and a shocked expression, his mouth open and eyes wide. He is wearing a dark, textured sweater. The background is dark and out of focus. Overlaid at the bottom of the image is the word "WRONG!" in large, bold, white capital letters.

WRONG!

THE K-MEANS ALGORITHM



Usage

```
kmeans(x, centers, iter.max = 10, nstart = 1,  
       algorithm = c("Hartigan-Wong", "Lloyd", "Forgy",  
                     "MacQueen"), trace=FALSE)  
## S3 method for class 'kmeans'  
fitted(object, method = c("centers", "classes"), ...)
```

Arguments

- | | |
|------------------------|--|
| <code>x</code> | numeric matrix of data, or an object that can be coerced to such a matrix (such as a numeric vector or a data frame with all numeric columns). |
| <code>centers</code> | either the number of clusters, say k , or a set of initial (distinct) cluster centres. If a number, a random set of (distinct) rows in <code>x</code> is chosen as the initial centres. |
| <code>iter.max</code> | the maximum number of iterations allowed. |
| <code>nstart</code> | if <code>centers</code> is a number, how many random sets should be chosen? |
| <code>algorithm</code> | character: may be abbreviated. Note that "Lloyd" and "Forgy" are alternative names for one algorithm. |
| <code>object</code> | an R object of class "kmeans", typically the result <code>ob</code> of <code>ob <- kmeans(...)</code> . |
| <code>method</code> | character: may be abbreviated. "centers" causes <code>fitted</code> to return cluster centers (one for each input point) and "classes" causes <code>fitted</code> to return a vector of class assignments. |
| <code>trace</code> | logical or integer number, currently only used in the default method ("Hartigan-Wong"): if positive (or true), tracing information on the progress of the algorithm is produced. Higher values may produce more tracing information. |
| <code>...</code> | not used. |