



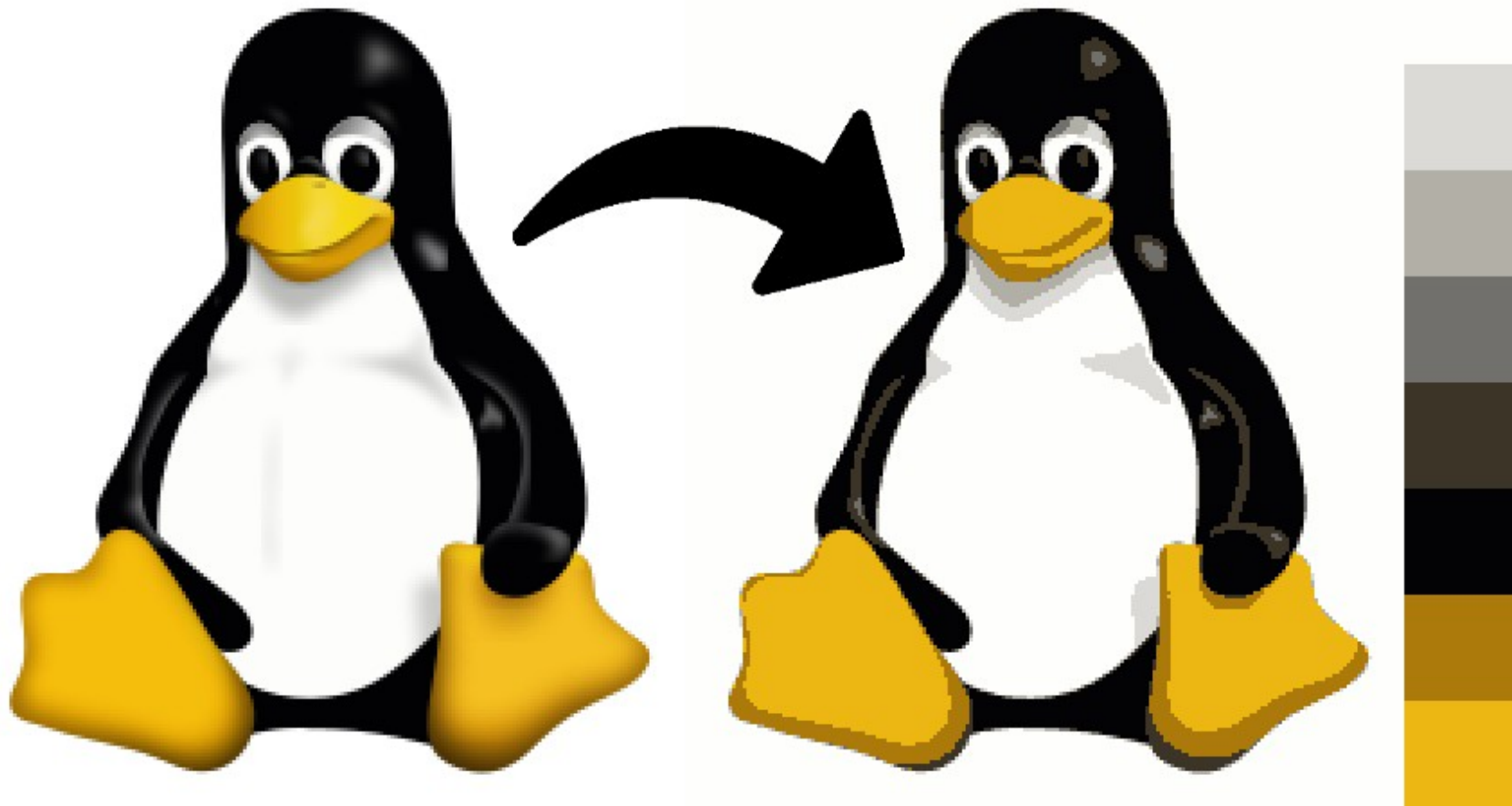
# Image Compressor

B-FUN-400

# Image Compression

- One strategy to (lossily) compress an image is to reduce its number of colors.
- To reduce an image to a specific number of colors, it is necessary to pick the good colors to do so.
- The **K-means** algorithm is a straightforward and efficient way to do so.

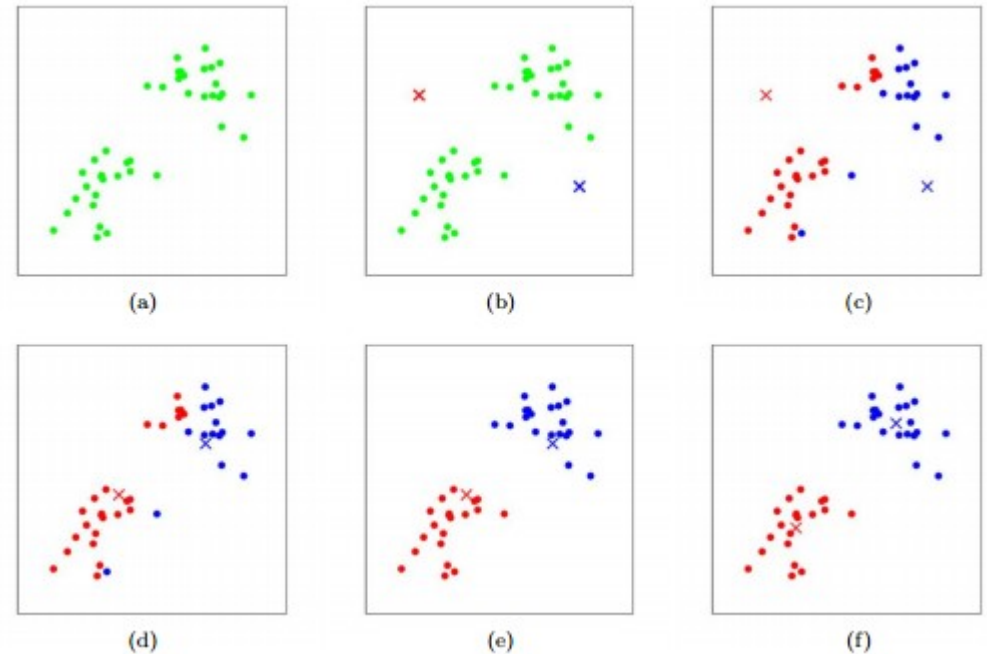
# Image Compression





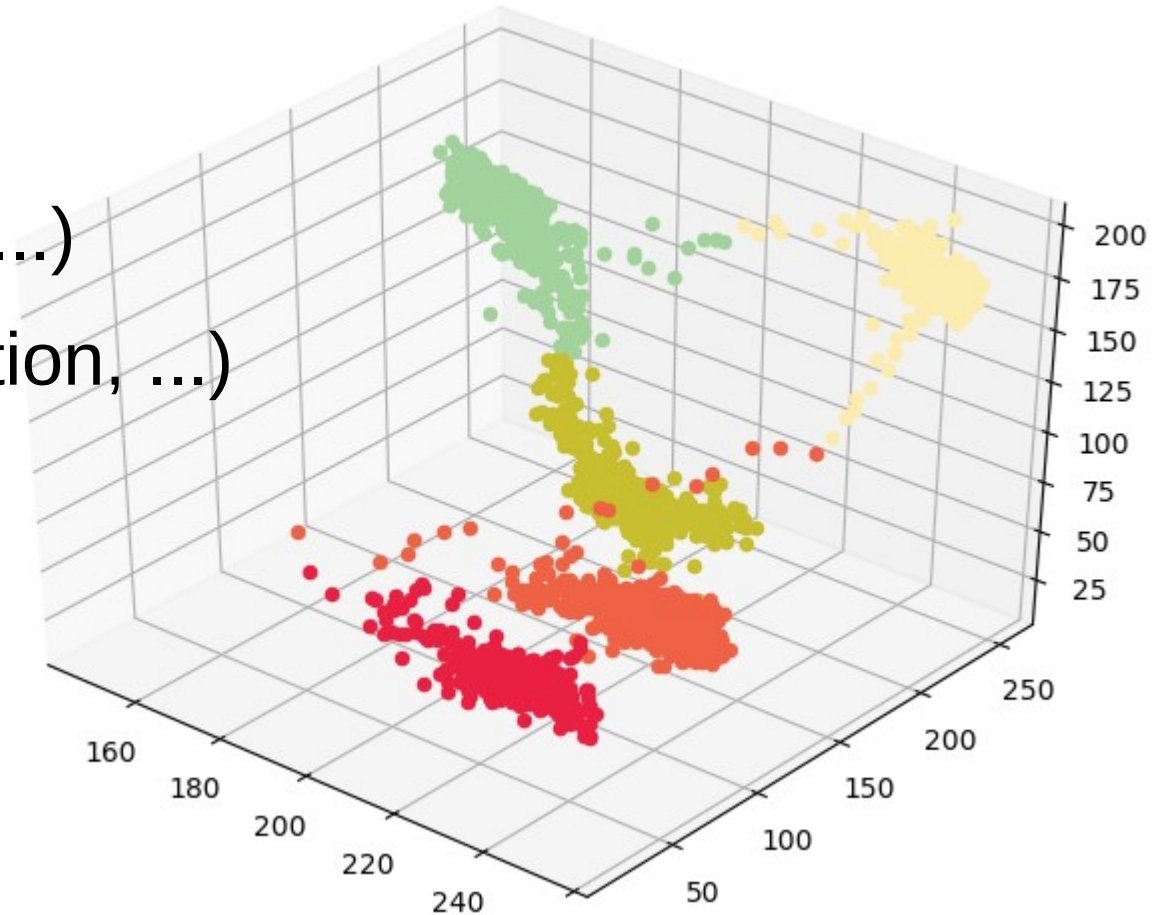
# K-means : application in color clustering

- Each vector stands for one data point
- Its coordinates are its rgb values
- A cluster is associated to one color (eg the rgb value of its centroid)
- First centroids are random, then the solution converges towards meaningful clusters



# K-means : other applications

- machine learning
- data analysis (pricing segmentation, ...)
- image processing (character recognition, ...)



# Performance

- relatively fast
- parallel version
- possible to find optimizations to speed it up

# Going further

- parallelization
- implement the image handling parts
- refactor your code to make it more functional
- great deal of optimization (in time)



# Questions ?