|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| objective We Made an Image Compress project in python by using the Numpy and Pillow (Image) library. goal  * Using SVD for image compression in Python.  image output Before    After | Logic behind this code Singular Value Decomposition - Explanation.  X = U ∑ Vt\*  X – original matrix (dimensions: (m rows, n columns – m,n))  U – unitary matrix  ∑ - rectangular diagonal matrix of singular values  Vt\* - unitary matrix  Visualizing ∑   |  |  |  |  |  | | --- | --- | --- | --- | --- | | α1 | 0 | 0 | 0 | 0 | | 0 | α2 | 0 | 0 | 0 | | 0 | 0 | α3 | 0 | 0 | | 0 | 0 | 0 | α4 |  | | 0 | 0 | 0 | 0 | α5 |   αi = ith singular value  α1 >= α2 >= ….. > = αn  Compressing with SVD    For K = 2  K – number of singular values we want to use for compression REsult after run program   This is output result it will be show after run program & also show the original the original image & compress image, in the output result there is mention compressed size & percentage compressed size. |



# PYTHON PROJECT

**Image Compress (SVD)**

**Student’s Name: Abdul Waris Souran, Waqar Hasan Alvi,**

**Deepika Sankarna**

**Faculty’s Name: Fatah Loualitence**