TASK 1: Feature Extraction

1. Dry run the below piece of code and see what it does.

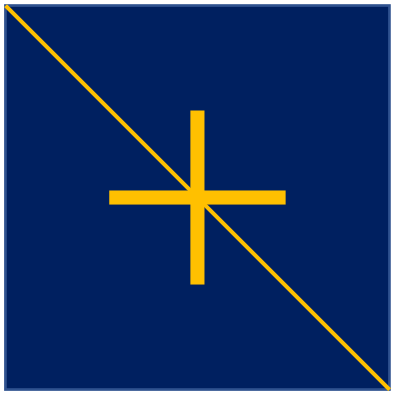
```
img = cv2.imread(imagePath,cv2.IMREAD_GRAYSCALE)
def whatItDoes(img):
  a,b=img.shape
  elements1=numpy.empty(a)
  k=0
  for j in range(100):
    if(img[j][j]!='nan'):
      elements1[k]=img[j][j]
    else:
      elements1[k]=0
    k=k+1
  return elements1
```

1. Extract all below mentioned features of an image.
2. Write those features in a csv file (column-wise)

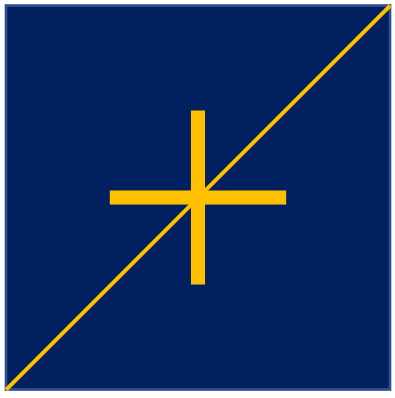
100x100

avgDiagOne()

avgDiagTwo()



sumDiagOne()



sumDiagTwo()

avgFirstThirtyCols()

avgLastThirtyCols()

avgFirstThirtyRows()

avgLastThirtyRows()

TASK 2: ANN/CNN Building Blocks

Find out the answers to #Commented Questions: (You need to describe each answer in no more than 3-4 lines)

```
# What does the below line do?
with open(‘path to file') as csvfile:

# What does writer() function do?
myWriter = csv.writer(csvfile)

# What does writerow() function do?
myWriter.writerow()

# What does Sequential() function do?
model = Sequential()

# What does add() function do?
# What does Dense() function do?

# What is activation=‘relu’?
model.add(Dense(128, input_dim=9, activation='relu’))

# What is Conv2D and how does it work?
model.add(Conv2D(128, (3, 3), input_shape=(100,100,1)))
model.add(Activation('relu’))

# What is MaxPooling2D and how does it work?
model.add(MaxPooling2D(pool_size=(2, 2)))

# What is Dropout?
model.add(Dropout(0.3))

# What does compile() function do?
model.compile()

# What does fit() function do?
model.fit()
```