**Given a A FULLY AUTOMATED DEEP LEARNING-BASED NETWORK FOR DETECTING
COVID-19 FROM A NEW AND LARGE LUNG CT SCAN DATASET paper
understand the paper and run the code
What is 1*1 convolution in FPN?
How three features are extracted from the top layer of FPN?
Run the code
Calculate the dimension differences occurring while using FPN.**

- 1*1 convolution is for changing the dimension of the depth.
  - (32,32,512) 1*1 conv with 1 filter is (32,32,1)
  - If we use 512 filters then our dimensions are (32,32,512).
- There are five features
  - conv(1*1) of C5
  - conv(1*1) of C4
  - conv(1*1) of C3
  - conv(3*3,stride=2) of C5
  - activation on P6 and conv(3*3,stride=2) of P6
- RESNET50V2:
  - **C3.shape (None, 32, 32, 512)**
  - **C4.shape (None, 16, 16, 1024)**
  - **C5.shape (None, 16, 16, 2048)**

- FPN:
  - NET 5 features
  - Feature 1
    - **P5 = conv(1*1) of C5 ->reduced to 256 featuremaps**
    - **P5.shape(conv1*1) (None, 16, 16, 256)**
    - **P5 Upsampled.shape
      KerasTensor(type_spec=TensorSpec(shape=(None, None, None,
      256), dtype=tf.float32, name=None),
      name='P5_upsampled/resize/ResizeNearestNeighbor:0',
      description="created by layer 'P5_upsampled'")**
    - **P5.shape(conv 3*3) (None, 16, 16, 256)**
  - Feature 2
    - **P4=conv(1*1) of C4 ->reduced to 256 feature maps**
    - **P4.shape(conv1*1) (None, 16, 16, 256)**
    - **P4.shape(concatenate P5_upsampled,P4) (None, 16, 16, 512)**
    - **P4_upsampled.shape (None, None, None, 512)**
    - **P4.shape(conv 3*3) (None, 14, 14, 256)**
  - Feature 3
    - **P3=conv(1*1) of C3 ->reduced to 256 feature maps**
    - **P3.shape(conv1*1) (None, 32, 32, 256)**
    - **P3.shape(concatenate P4_upsampled,P3) (None, 32, 32, 768)**
    - **P3.shape(conv 3*3) (None, 30, 30, 256)**

- Feature 4
  - **P6=conv(3*3,stride=2) of C5**
  - **P6.shape(conv 3*3,stride=2) (None, 8, 8, 256)**
- Feature 5
  - **P7=activation on P6 and conv(3*3,stride=2) of P6**
  - **P7.shape(P6-relu,conv 3*3,stride=2) (None, 4, 4, 256)**