

Exercice 3.20.1 - Solution :

```
import matplotlib.pyplot as plt
import numpy as np
```

```
Mat = np.array( [ 0 for i in range (300) ] )
```

```
Mat = Mat.reshape(10,10,3)  # ou bien Mat = np.zeros((10,10,3))
```

```
# Méthode-1 : Dans l'ordre, Lignes rouges, puis vertes, puis bleues
```

```
for i in range (0,10,3):  # Lignes rouges ( début = 0, pas = 3 )
```

```
    Mat[i,:,0] = 255
```

```
for i in range (1,10,3):  # Lignes vertes ( début = 1, pas = 3 )
```

```
    Mat[i,:,1] = 255
```

```
for i in range (2,10,3):  # Lignes bleues ( début = 2, pas = 3 )
```

```
    Mat[i,:,2] = 255
```

```
plt.imshow( Mat )
```

```
plt.show()
```

Exercice 3.20.1 - Solution :

Méthode-2 : idem Méthode-1 mais une seule boucle "for" pour les 3 couleurs

```
for i in range (10):  
    if (i%3 == 0): Mat[i,:,0] = 255 # r,g,b = 255, 0, 0  
    if (i%3 == 1): Mat[i,:,1] = 255 # r,g,b = 0, 255, 0  
    if (i%3 == 2): Mat[i,:,2] = 255 # r,g,b = 0, 0, 255
```

```
plt.imshow( Mat )  
plt.show()
```

Méthode-3

```
for i in range (10):  
    Mat[i, :, i%3] =255
```

```
plt.imshow(Mat)  
plt.show()
```

Exercice 3.20.1 - Solution :

Méthode-4

```
Mat[0::3, :, 0] = 255
```

```
Mat[1::3, :, 1] = 255
```

```
Mat[2::3, :, 2] = 255
```

```
plt.imshow(Mat)
```

```
plt.show()
```

Exercice 3.20.1 - Solution :

Méthode-5 : NON RECOMMENDEE (deux boucles imbriquées)

```
for i in range (10):  
    if (i%3 == 0): r,g,b = 255,0, 0  
    if (i%3 == 1): r,g,b = 0, 255,0  
    if (i%3 == 2): r,g,b = 0, 0,255  
    for j in range (10):  
        Mat[i,j,0]=r  
        Mat[i,j,1]=g  
        Mat[i,j,2]=b  
  
plt.imshow( Mat )  
plt.show()
```