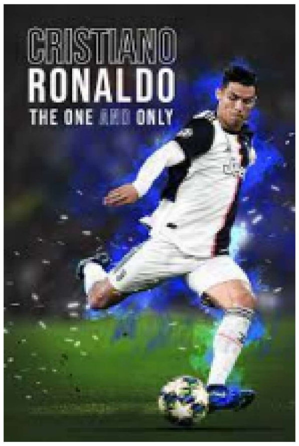
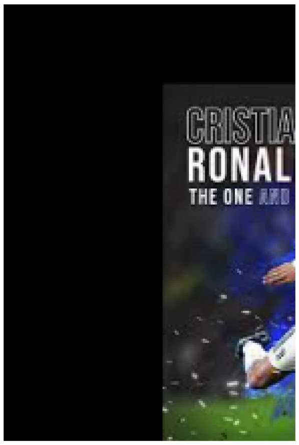
In [1]:

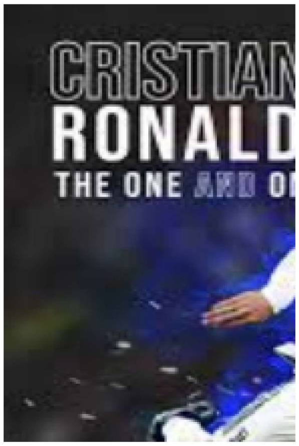
```
import numpy as np
import matplotlib.pyplot as plt
import cv2 as cv

#plotting of an image
image = cv.imread("cr.jpg")
image = cv.cvtColor(image, cv.COLOR_BGR2RGB)
plt.axis("off")
plt.imshow(image)
plt.show()

#translation of an image
rows,cols,dim = image.shape
M = np.float32([[1,0,100], [0,1,50],[0,0,1]])

translated_image= cv.warpPerspective(image, M, (cols, rows))

plt.axis("off")
plt.imshow(translated_image)
plt.show()
```





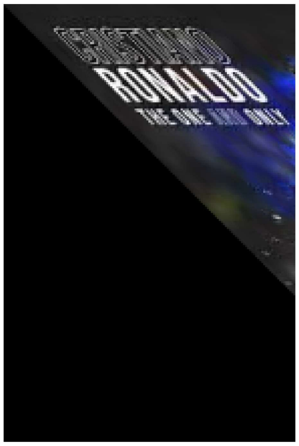
In [2]:

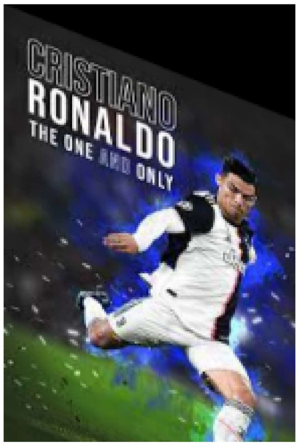
```
rows,cols,dim = image.shape

M_scale = np.float32([[2,0,0], [0,1.6,0],[0,0,1]])

scale_image= cv.warpPerspective(image, M_scale, (cols, rows))


plt.axis("off")
plt.imshow(scale_image)
plt.show()
```



In [3]:

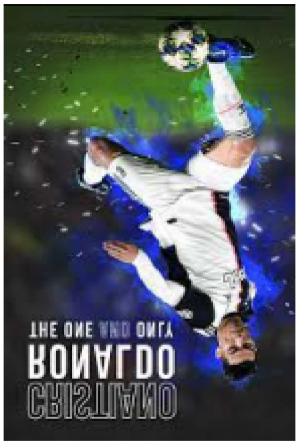
```
M_x = np.float32([[1,1,0], [0,1,0],[0,0,1]])

M_y = np.float32([[1,0,0], [0.4,1,0],[0,0,1]])


shear_imagex= cv.warpPerspective(image, M_x, (cols, rows))
shear_imagey= cv.warpPerspective(image, M_y, (cols, rows))


plt.axis("off")
plt.imshow(shear_imagex)
#plt.imshow(shear_imagey)
plt.show()


plt.axis("off")
#plt.imshow(shear_imagex)
plt.imshow(shear_imagey)
plt.show()
```

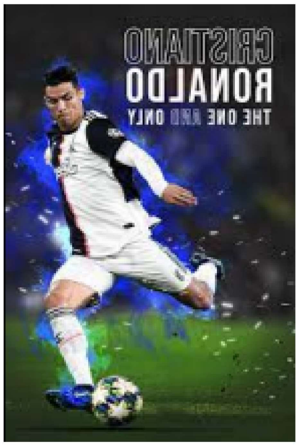




In [4]:

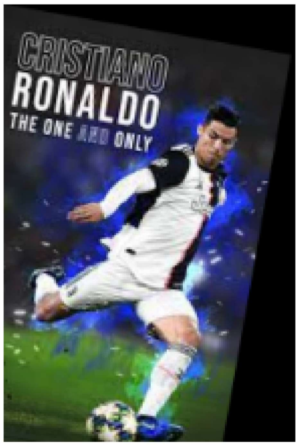
```
M_x = np.float32([[1,0,0],[0,-1,rows],[0,0,1]])

M_y = np.float32([[-1,0,cols], [0,1,0],[0,0,1]])

ref_imagex= cv.warpPerspective(image, M_x, (cols, rows))
ref_imagey= cv.warpPerspective(image, M_y, (cols, rows))


plt.axis("off")
plt.imshow(ref_imagex)
plt.show()


plt.axis("off")
plt.imshow(ref_imagey)
plt.show()
```



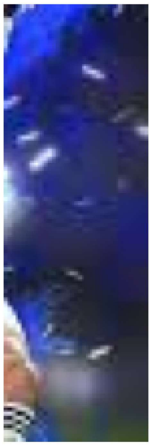


In [6]:
```
angle=np.radians(10)
matrix=np.float32([[np.cos(angle),-np.sin(angle),0],
                                [np.sin(angle),np.cos(angle),0],
                                [0,0,1]])
Rotated_image=cv.warpPerspective(image,matrix,(cols,rows))
plt.axis("off")
plt.imshow(Rotated_image)
```

Out[6]:
```
<matplotlib.image.AxesImage at 0x29b4fc57e20>
```



In [11]:
```
crop_img = image[100:200, 150:200]


plt.axis("off")
plt.imshow(crop_img)
plt.show()
```



```
In [ ]:
```