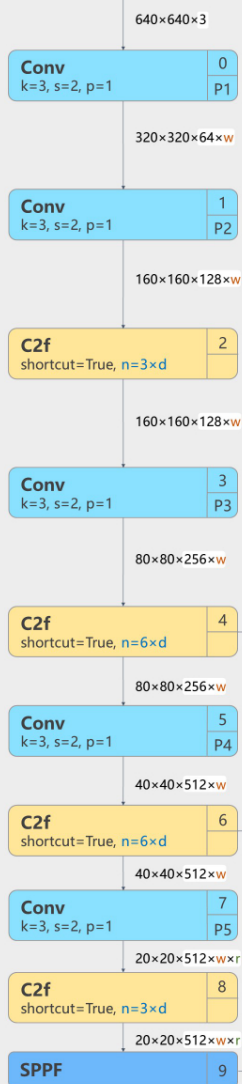
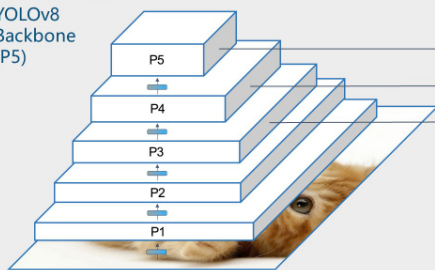
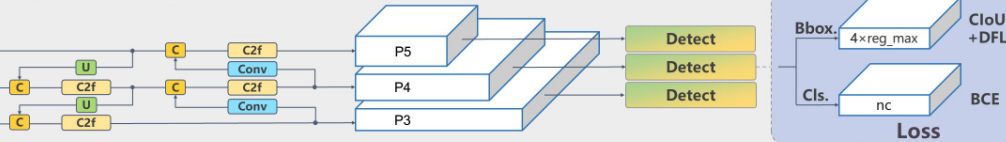


YOLOv8
Backbone
(P5)

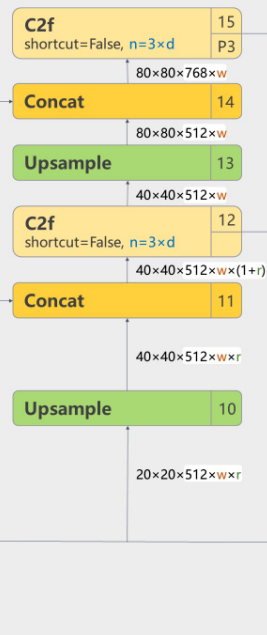
Note:
height×width×channel

Head YOLOv8Head

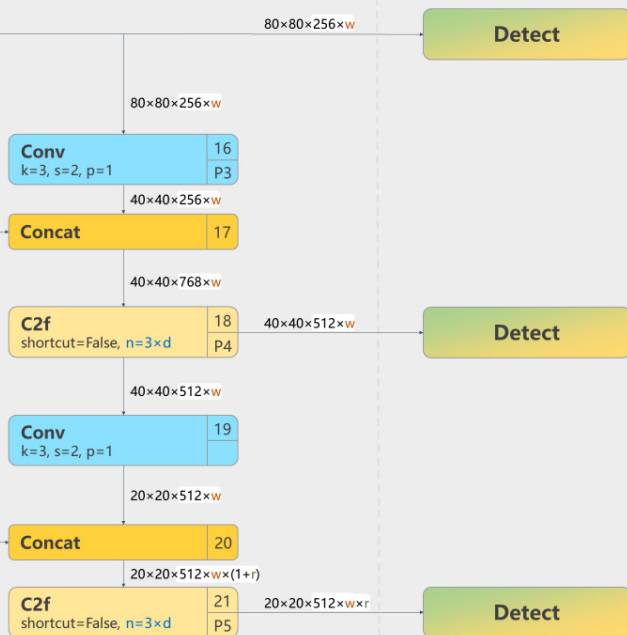
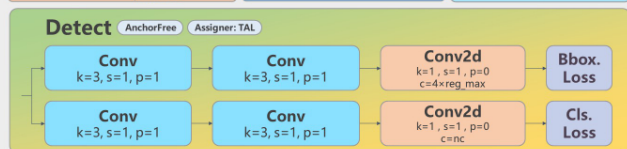
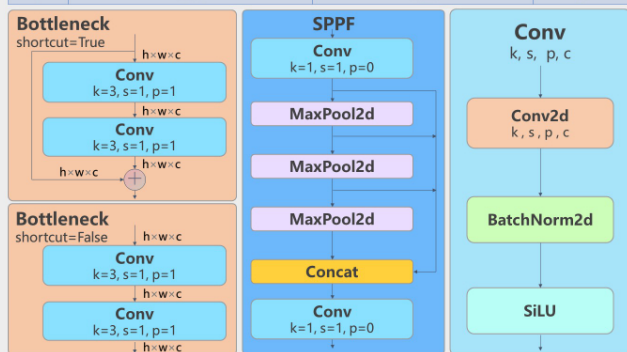
```

graph TD
    In((h × w × c_in)) --> Conv1[Conv  
k=1, s=1, p=0,  
c=c_out]
    Conv1 --> Split[Split]
    Split --> Bottleneck1[Bottleneck  
shortcut=?]
    Bottleneck1 --> Bottleneck2[Bottleneck  
shortcut=?]
    Bottleneck2 --> Concat[Concat]
    Split --> Concat
    Concat --> Conv2[Conv  
k=1, s=1, p=0,  
c=c_out]
    Conv2 --> Out((h × w × c_out))
  
```

The flowchart illustrates the C2f module structure. It begins with an input $h \times w \times c_{in}$ entering a blue box labeled "Conv" with parameters $k=1, s=1, p=0, c=c_{out}$. The output of this convolution is $h \times w \times c_{out}$, which then enters a green box labeled "Split". The "Split" operation branches the data into two paths. One path goes directly to a yellow box labeled "Concat". The other path enters a pink box labeled "Bottleneck" with the text "shortcut=?". This is followed by an ellipsis indicating multiple such bottleneck blocks, and then another pink box labeled "Bottleneck" with "shortcut=?". The output of the final bottleneck block is $h \times w \times 0.5c_{out}$, which is then combined with the direct path from the "Split" operation in the "Concat" box. The output of the "Concat" box is $h \times w \times 0.5(n+2)c_{out}$, which then enters a final blue box labeled "Conv" with parameters $k=1, s=1, p=0, c=c_{out}$. The final output of the module is $h \times w \times c_{out}$.



model	d (depth_multiple)	w (width_multiple)	r (ratio)
n	0.33	0.25	2.0
s	0.33	0.50	2.0
m	0.67	0.75	1.5
l	1.00	1.00	1.0
x	1.00	1.25	1.0



Head