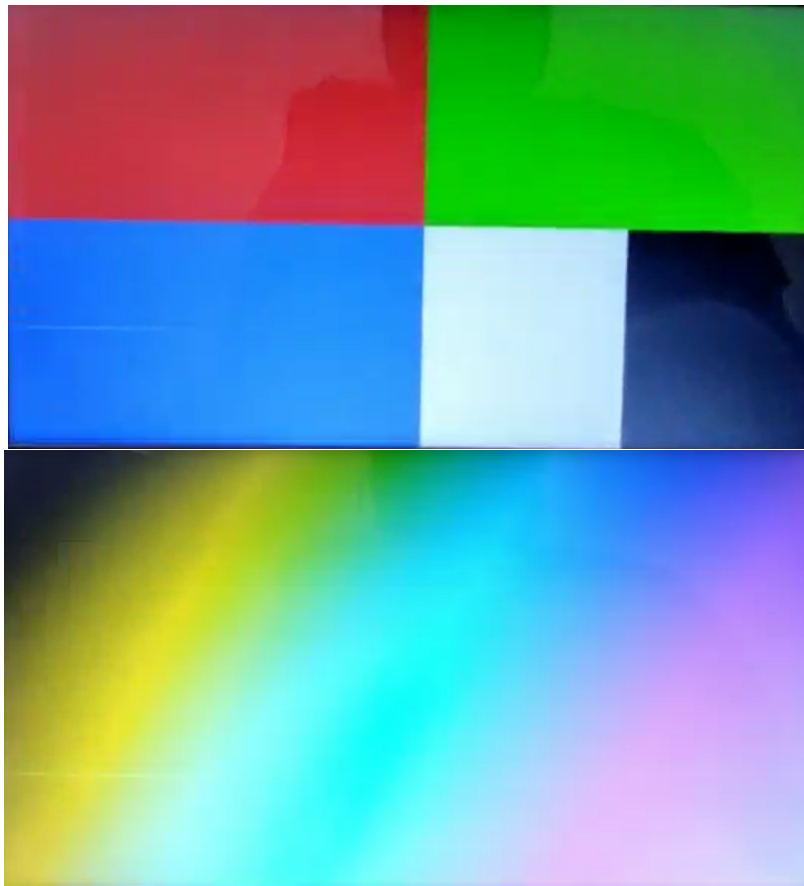
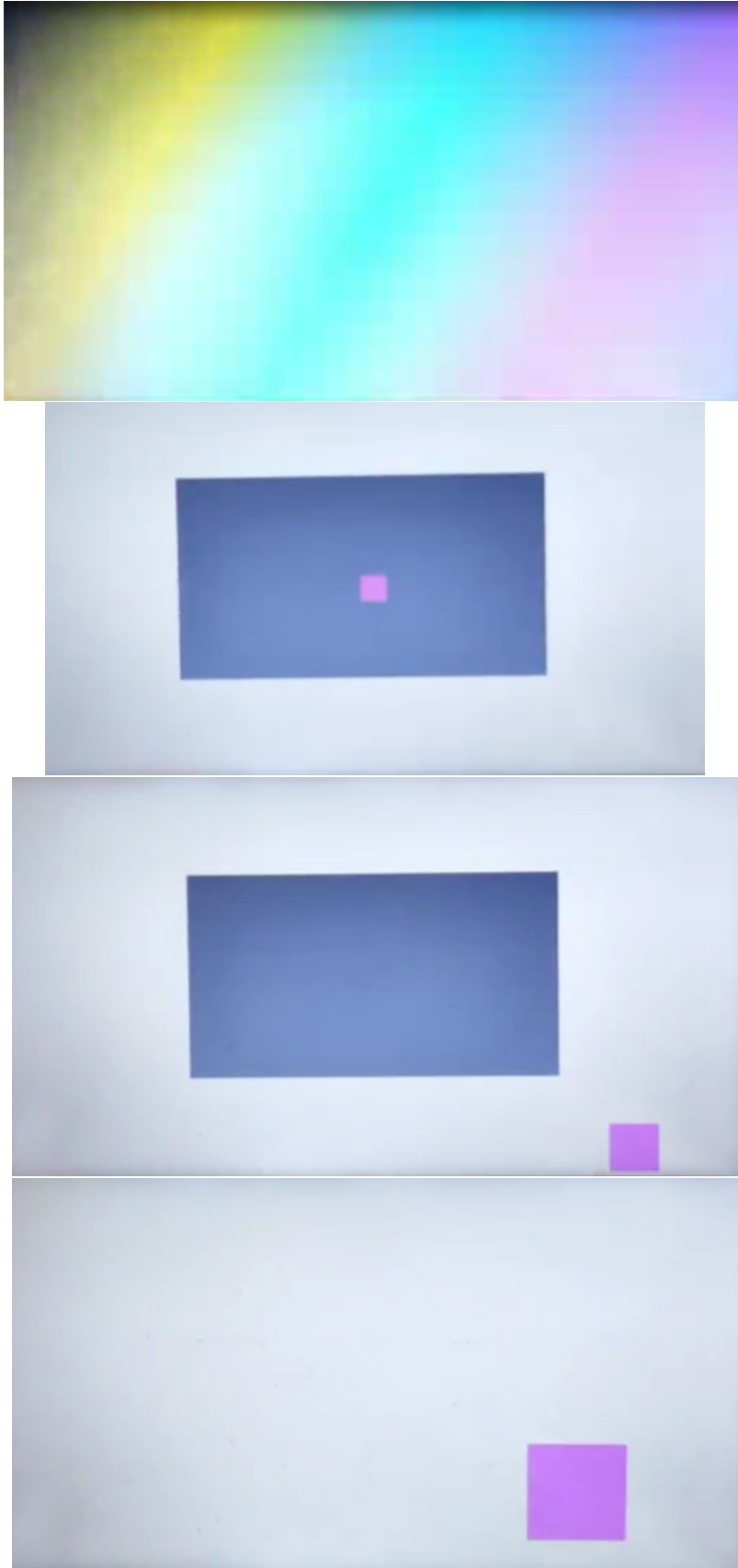

Assignment 2: Display Architecture

Part (1): The following is the terminal output after running the *kms_setmode* test package.

```
sohamkulkarni@sohamxlegion:~/igt-gpu-tools/scripts$ bash run-tests.sh -t kms_setmode
Found test list: "/home/sohamkulkarni/igt-gpu-tools/build/tests/test-list.txt"
[689.000981] [1/6] kms_setmode (basic)
[690.991348] [2/6] kms_setmode (basic-clone-single-crtc)
[691.241101] [3/6] kms_setmode (invalid-clone-single-crtc)
[691.522848] [4/6] kms_setmode (invalid-clone-exclusive-crtc)
[691.852054] [5/6] kms_setmode (clone-exclusive-crtc)
[693.119723] [6/6] kms_setmode (invalid-clone-single-crtc-stealing)
Done.
```

The output images are given below.





Part (2): The following is the terminal output after running the *kms_plane* test package.

```
sohamkulkarni@sohamxlegion:~/igt-gpu-tools/scripts$ bash run-tests.sh -t kms_plane
Found test list: "/home/sohamkulkarni/igt-gpu-tools/build/tests/test-list.txt"
[sudo] password for sohamkulkarni:
[438.574210] [001/169] kms_plane (pixel-format)
[438.810061] [002/169] kms_plane (pixel-format-source-clamping)
[439.038715] [003/169] kms_plane (plane-position-covered)
[439.266873] [004/169] kms_plane (plane-position-hole)
[439.562502] [005/169] kms_plane (plane-position-hole-dpms)
[439.836261] [006/169] kms_plane (plane-panning-top-left)
[441.078779] [007/169] kms_plane (plane-panning-bottom-right)
[441.369111] [008/169] kms_plane (plane-panning-bottom-right-suspend)
[441.696591] [009/169] kms_plane_alpha_blend (pipe-A-alpha-basic)
[441.988982] [010/169] kms_plane_alpha_blend (pipe-A-alpha-7efc)
[442.763478] [011/169] kms_plane_alpha_blend (pipe-A-coverage-7efc)
[443.610471] [012/169] kms_plane_alpha_blend (pipe-A-coverage-vs-premult-vs-constant)
[443.932838] [013/169] kms_plane_alpha_blend (pipe-A-alpha-transparent-fb)
[444.309644] [014/169] kms_plane_alpha_blend (pipe-A-alpha-opaque-fb)
[445.613807] [015/169] kms_plane_alpha_blend (pipe-A-constant-alpha-min)
[445.971952] [016/169] kms_plane_alpha_blend (pipe-A-constant-alpha-mid)
[447.313687] [017/169] kms_plane_alpha_blend (pipe-A-constant-alpha-max)
[447.715192] [018/169] kms_plane_alpha_blend (pipe-B-alpha-basic)
[448.116918] [019/169] kms_plane_alpha_blend (pipe-B-alpha-7efc)
[449.417136] [020/169] kms_plane_alpha_blend (pipe-B-coverage-7efc)
[449.834122] [021/169] kms_plane_alpha_blend (pipe-B-coverage-vs-premult-vs-constant)
[450.895165] [022/169] kms_plane_alpha_blend (pipe-B-alpha-transparent-fb)
[451.257968] [023/169] kms_plane_alpha_blend (pipe-B-alpha-opaque-fb)
[451.588229] [024/169] kms_plane_alpha_blend (pipe-B-constant-alpha-min)
[451.938943] [025/169] kms_plane_alpha_blend (pipe-B-constant-alpha-mid)
[453.403592] [026/169] kms_plane_alpha_blend (pipe-B-constant-alpha-max)
[454.081659] [027/169] kms_plane_alpha_blend (pipe-C-alpha-basic)
[455.414609] [028/169] kms_plane_alpha_blend (pipe-C-alpha-7efc)
[456.761609] [029/169] kms_plane_alpha_blend (pipe-C-coverage-7efc)
[458.729520] [030/169] kms_plane_alpha_blend (pipe-C-coverage-vs-premult-vs-constant)
[461.761274] [031/169] kms_plane_alpha_blend (pipe-C-alpha-transparent-fb)
[464.501509] [032/169] kms_plane_alpha_blend (pipe-C-alpha-opaque-fb)
[467.603411] [033/169] kms_plane_alpha_blend (pipe-C-constant-alpha-min)
[472.790698] [034/169] kms_plane_alpha_blend (pipe-C-constant-alpha-mid)
[479.933403] [035/169] kms_plane_alpha_blend (pipe-C-constant-alpha-max)
[484.381038] [036/169] kms_plane_alpha_blend (pipe-D-alpha-basic)
[489.474963] [037/169] kms_plane_alpha_blend (pipe-D-alpha-7efc)
[491.830566] [038/169] kms_plane_alpha_blend (pipe-D-coverage-7efc)
```

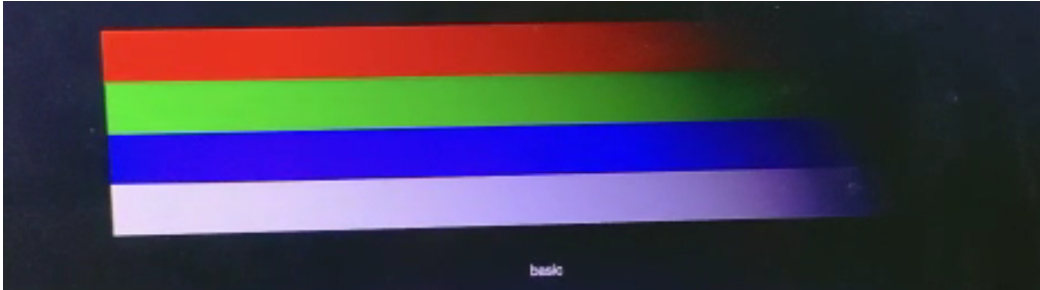
[493.895813]	[039/169]	kms_plane_alpha_blend	(pipe-D-coverage-vs-premult-vs-constant)
[497.675459]	[040/169]	kms_plane_alpha_blend	(pipe-D-alpha-transparent-fb)
[500.821531]	[041/169]	kms_plane_alpha_blend	(pipe-D-alpha-opaque-fb)
[503.626552]	[042/169]	kms_plane_alpha_blend	(pipe-D-constant-alpha-min)
[506.723594]	[043/169]	kms_plane_alpha_blend	(pipe-D-constant-alpha-mid)
[508.532165]	[044/169]	kms_plane_alpha_blend	(pipe-D-constant-alpha-max)
[510.972694]	[045/169]	kms_plane_alpha_blend	(pipe-E-alpha-basic)
[512.196099]	[046/169]	kms_plane_alpha_blend	(pipe-E-alpha-7efc)
[514.428889]	[047/169]	kms_plane_alpha_blend	(pipe-E-coverage-7efc)
[517.034667]	[048/169]	kms_plane_alpha_blend	(pipe-E-coverage-vs-premult-vs-constant)
[519.251967]	[049/169]	kms_plane_alpha_blend	(pipe-E-alpha-transparent-fb)
[521.251621]	[050/169]	kms_plane_alpha_blend	(pipe-E-alpha-opaque-fb)
[522.689544]	[051/169]	kms_plane_alpha_blend	(pipe-E-constant-alpha-min)
[525.322483]	[052/169]	kms_plane_alpha_blend	(pipe-E-constant-alpha-mid)
[525.754687]	[053/169]	kms_plane_alpha_blend	(pipe-E-constant-alpha-max)
[526.555572]	[054/169]	kms_plane_alpha_blend	(pipe-F-alpha-basic)
[527.896768]	[055/169]	kms_plane_alpha_blend	(pipe-F-alpha-7efc)
[528.373583]	[056/169]	kms_plane_alpha_blend	(pipe-F-coverage-7efc)
[529.502806]	[057/169]	kms_plane_alpha_blend	(pipe-F-coverage-vs-premult-vs-constant)
[529.916853]	[058/169]	kms_plane_alpha_blend	(pipe-F-alpha-transparent-fb)
[530.449276]	[059/169]	kms_plane_alpha_blend	(pipe-F-alpha-opaque-fb)
[531.430259]	[060/169]	kms_plane_alpha_blend	(pipe-F-constant-alpha-min)
[531.833540]	[061/169]	kms_plane_alpha_blend	(pipe-F-constant-alpha-mid)
[532.202171]	[062/169]	kms_plane_alpha_blend	(pipe-F-constant-alpha-max)
[533.320361]	[063/169]	kms_plane_cursor	(pipe-A-overlay-size-64)
[533.791633]	[064/169]	kms_plane_cursor	(pipe-A-primary-size-64)
[534.957553]	[065/169]	kms_plane_cursor	(pipe-A-viewport-size-64)
[535.502474]	[066/169]	kms_plane_cursor	(pipe-A-overlay-size-128)
[536.984898]	[067/169]	kms_plane_cursor	(pipe-A-primary-size-128)
[537.392181]	[068/169]	kms_plane_cursor	(pipe-A-viewport-size-128)
[538.518884]	[069/169]	kms_plane_cursor	(pipe-A-overlay-size-256)
[538.874411]	[070/169]	kms_plane_cursor	(pipe-A-primary-size-256)
[539.303833]	[071/169]	kms_plane_cursor	(pipe-A-viewport-size-256)
[540.749094]	[072/169]	kms_plane_cursor	(pipe-B-overlay-size-64)
[541.212406]	[073/169]	kms_plane_cursor	(pipe-B-primary-size-64)
[542.420450]	[074/169]	kms_plane_cursor	(pipe-B-viewport-size-64)
[543.595892]	[075/169]	kms_plane_cursor	(pipe-B-overlay-size-128)
[546.257467]	[076/169]	kms_plane_cursor	(pipe-B-primary-size-128)
[546.880799]	[077/169]	kms_plane_cursor	(pipe-B-viewport-size-128)
[547.515646]	[078/169]	kms_plane_cursor	(pipe-B-overlay-size-256)
[548.435761]	[079/169]	kms_plane_cursor	(pipe-B-primary-size-256)
[548.942991]	[080/169]	kms_plane_cursor	(pipe-B-viewport-size-256)
[550.039858]	[081/169]	kms_plane_cursor	(pipe-C-overlay-size-64)

[550.521208]	[082/169]	kms_plane_cursor	(pipe-C-primary-size-64)
[551.599696]	[083/169]	kms_plane_cursor	(pipe-C-viewport-size-64)
[551.958847]	[084/169]	kms_plane_cursor	(pipe-C-overlay-size-128)
[552.386437]	[085/169]	kms_plane_cursor	(pipe-C-primary-size-128)
[553.593971]	[086/169]	kms_plane_cursor	(pipe-C-viewport-size-128)
[554.203448]	[087/169]	kms_plane_cursor	(pipe-C-overlay-size-256)
[556.272671]	[088/169]	kms_plane_cursor	(pipe-C-primary-size-256)
[556.782275]	[089/169]	kms_plane_cursor	(pipe-C-viewport-size-256)
[557.859730]	[090/169]	kms_plane_cursor	(pipe-D-overlay-size-64)
[558.324978]	[091/169]	kms_plane_cursor	(pipe-D-primary-size-64)
[558.727183]	[092/169]	kms_plane_cursor	(pipe-D-viewport-size-64)
[559.723099]	[093/169]	kms_plane_cursor	(pipe-D-overlay-size-128)
[560.177302]	[094/169]	kms_plane_cursor	(pipe-D-primary-size-128)
[561.338560]	[095/169]	kms_plane_cursor	(pipe-D-viewport-size-128)
[561.884701]	[096/169]	kms_plane_cursor	(pipe-D-overlay-size-256)
[563.017365]	[097/169]	kms_plane_cursor	(pipe-D-primary-size-256)
[563.445714]	[098/169]	kms_plane_cursor	(pipe-D-viewport-size-256)
[563.904525]	[099/169]	kms_plane_cursor	(pipe-E-overlay-size-64)
[564.912161]	[100/169]	kms_plane_cursor	(pipe-E-primary-size-64)
[565.325533]	[101/169]	kms_plane_cursor	(pipe-E-viewport-size-64)
[566.387165]	[102/169]	kms_plane_cursor	(pipe-E-overlay-size-128)
[566.863623]	[103/169]	kms_plane_cursor	(pipe-E-primary-size-128)
[567.922403]	[104/169]	kms_plane_cursor	(pipe-E-viewport-size-128)
[568.451227]	[105/169]	kms_plane_cursor	(pipe-E-overlay-size-256)
[569.540202]	[106/169]	kms_plane_cursor	(pipe-E-primary-size-256)
[569.937430]	[107/169]	kms_plane_cursor	(pipe-E-viewport-size-256)
[570.405561]	[108/169]	kms_plane_cursor	(pipe-F-overlay-size-64)
[571.493321]	[109/169]	kms_plane_cursor	(pipe-F-primary-size-64)
[571.862937]	[110/169]	kms_plane_cursor	(pipe-F-viewport-size-64)
[572.276222]	[111/169]	kms_plane_cursor	(pipe-F-overlay-size-128)
[573.325056]	[112/169]	kms_plane_cursor	(pipe-F-primary-size-128)
[573.788305]	[113/169]	kms_plane_cursor	(pipe-F-viewport-size-128)
[574.857000]	[114/169]	kms_plane_cursor	(pipe-F-overlay-size-256)
[575.381838]	[115/169]	kms_plane_cursor	(pipe-F-primary-size-256)
[576.439456]	[116/169]	kms_plane_cursor	(pipe-F-viewport-size-256)
[576.891452]	[117/169]	kms_plane_lowres	(pipe-A-tiling-none)
[577.254955]	[118/169]	kms_plane_lowres	(pipe-A-tiling-x)
[578.287844]	[119/169]	kms_plane_lowres	(pipe-A-tiling-y)
[578.680252]	[120/169]	kms_plane_lowres	(pipe-A-tiling-yf)
[579.761762]	[121/169]	kms_plane_lowres	(pipe-B-tiling-none)
[580.201474]	[122/169]	kms_plane_lowres	(pipe-B-tiling-x)
[580.848538]	[123/169]	kms_plane_lowres	(pipe-B-tiling-y)
[581.825777]	[124/169]	kms_plane_lowres	(pipe-B-tiling-yf)

[582.256736]	[125/169]	kms_plane_lowres	(pipe-C-tiling-none)
[583.368326]	[126/169]	kms_plane_lowres	(pipe-C-tiling-x)
[584.086353]	[127/169]	kms_plane_lowres	(pipe-C-tiling-y)
[585.346933]	[128/169]	kms_plane_lowres	(pipe-C-tiling-yf)
[585.811147]	[129/169]	kms_plane_lowres	(pipe-D-tiling-none)
[586.953897]	[130/169]	kms_plane_lowres	(pipe-D-tiling-x)
[587.473915]	[131/169]	kms_plane_lowres	(pipe-D-tiling-y)
[588.566661]	[132/169]	kms_plane_lowres	(pipe-D-tiling-yf)
[588.977782]	[133/169]	kms_plane_lowres	(pipe-E-tiling-none)
[589.354016]	[134/169]	kms_plane_lowres	(pipe-E-tiling-x)
[590.419954]	[135/169]	kms_plane_lowres	(pipe-E-tiling-y)
[590.832777]	[136/169]	kms_plane_lowres	(pipe-E-tiling-yf)
[591.905759]	[137/169]	kms_plane_lowres	(pipe-F-tiling-none)
[592.330162]	[138/169]	kms_plane_lowres	(pipe-F-tiling-x)
[593.691243]	[139/169]	kms_plane_lowres	(pipe-F-tiling-y)
[594.123162]	[140/169]	kms_plane_lowres	(pipe-F-tiling-yf)
[594.849490]	[141/169]	kms_plane_multiple	(atomic-pipe-A-tiling-x)
[595.680575]	[142/169]	kms_plane_multiple	(atomic-pipe-A-tiling-y)
[596.103607]	[143/169]	kms_plane_multiple	(atomic-pipe-A-tiling-yf)
[597.125002]	[144/169]	kms_plane_multiple	(atomic-pipe-A-tiling-none)
[597.501958]	[145/169]	kms_plane_multiple	(atomic-pipe-B-tiling-x)
[598.011603]	[146/169]	kms_plane_multiple	(atomic-pipe-B-tiling-y)
[599.085999]	[147/169]	kms_plane_multiple	(atomic-pipe-B-tiling-yf)
[599.555865]	[148/169]	kms_plane_multiple	(atomic-pipe-B-tiling-none)
[600.666597]	[149/169]	kms_plane_multiple	(atomic-pipe-C-tiling-x)
[601.158093]	[150/169]	kms_plane_multiple	(atomic-pipe-C-tiling-y)
[602.221579]	[151/169]	kms_plane_multiple	(atomic-pipe-C-tiling-yf)
[602.649732]	[152/169]	kms_plane_multiple	(atomic-pipe-C-tiling-none)
[603.776339]	[153/169]	kms_plane_multiple	(atomic-pipe-D-tiling-x)
[604.140945]	[154/169]	kms_plane_multiple	(atomic-pipe-D-tiling-y)
[604.558888]	[155/169]	kms_plane_multiple	(atomic-pipe-D-tiling-yf)
[605.765312]	[156/169]	kms_plane_multiple	(atomic-pipe-D-tiling-none)
[606.000969]	[157/169]	kms_plane_multiple	(atomic-pipe-E-tiling-x)
[606.216940]	[158/169]	kms_plane_multiple	(atomic-pipe-E-tiling-y)
[606.445162]	[159/169]	kms_plane_multiple	(atomic-pipe-E-tiling-yf)
[607.005713]	[160/169]	kms_plane_multiple	(atomic-pipe-E-tiling-none)
[608.079965]	[161/169]	kms_plane_multiple	(atomic-pipe-F-tiling-x)
[608.477648]	[162/169]	kms_plane_multiple	(atomic-pipe-F-tiling-y)
[608.761000]	[163/169]	kms_plane_multiple	(atomic-pipe-F-tiling-yf)
[609.073127]	[164/169]	kms_plane_multiple	(atomic-pipe-F-tiling-none)
[610.050485]	[165/169]	kms_plane_scaling	(plane-scaling)
[610.423795]	[166/169]	kms_plane_scaling	(scaler-with-pixel-format)
[610.846084]	[167/169]	kms_plane_scaling	(scaler-with-rotation)

```
[611.866412] [168/169] kms_plane_scaling (scaler-with-clipping-clamping)
[612.271935] [169/169] kms_plane_scaling (2x-scaler-multi-pipe)
Done.
```

The output is given below.



Soham Kulkarni, EE19BTECH11053, IIT Hyderabad