

# COMPUTER GRAPHICS

EXAMPLES

# PAINTING



<https://www.shutterstock.com/image-vector/child-drawing-house-sun-on-paper-612869243>

# CAVE PAINTING



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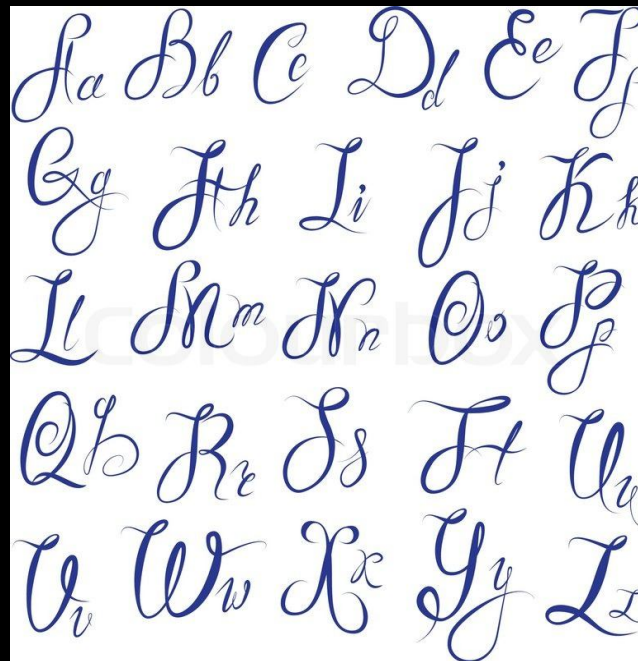
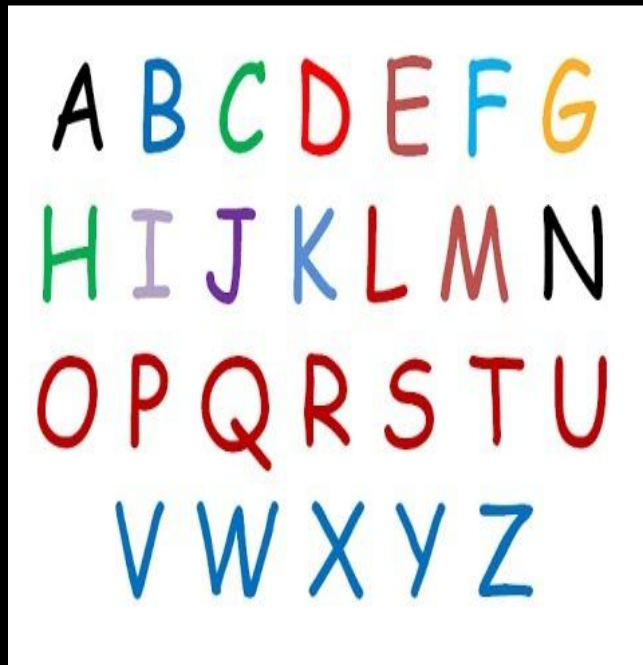
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# SEAL STAMP



<https://www.metmuseum.org/toah/works-of-art/49.40.1/>

# ALPHABETS



<https://www.google.com/url?sa=i&source=images&cd=&cad=rja&uact=8&ved=2ahUKEwiAmYUaiaXcANXUCaKHeLUBXOQjh6BAgBEAM&url=https%3A%2F%2Fwww.guestige-aufkleber-und-folien.de%2Fshop%2Fring%2Fen%2Fadhesive-letters-and-adhesive-numbers%2Fcapital-letter%2Fcapital-letters-initial-sticker-typeface-old-english.html&psig=AOwaw1yB3VRSny2dKOLDGeyh4C&ust=153180995921157>

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# HIEROGLYPHICS



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# INSCRIPTION

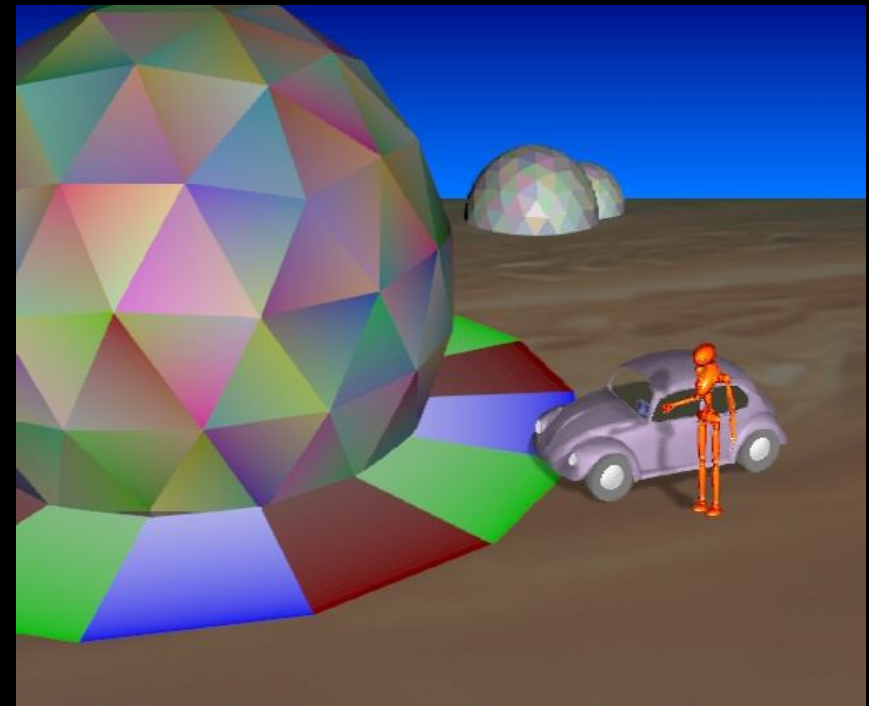
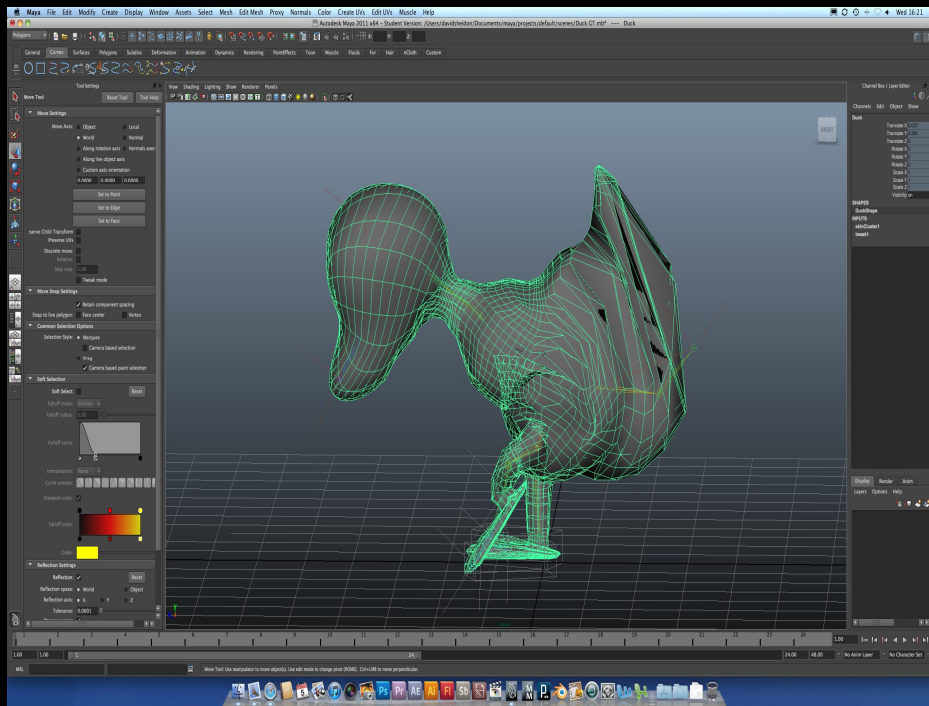


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# COMPUTER GRAPHICS

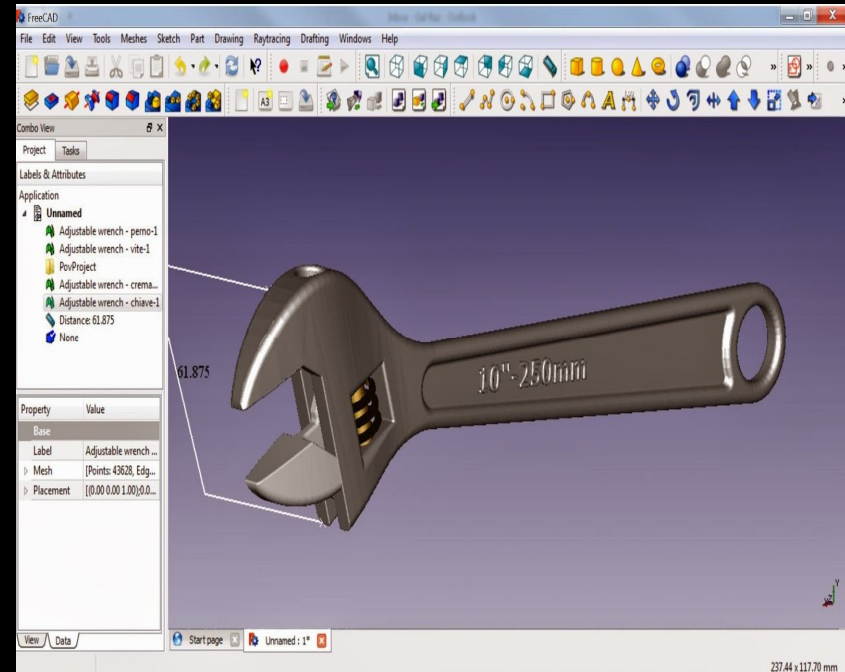
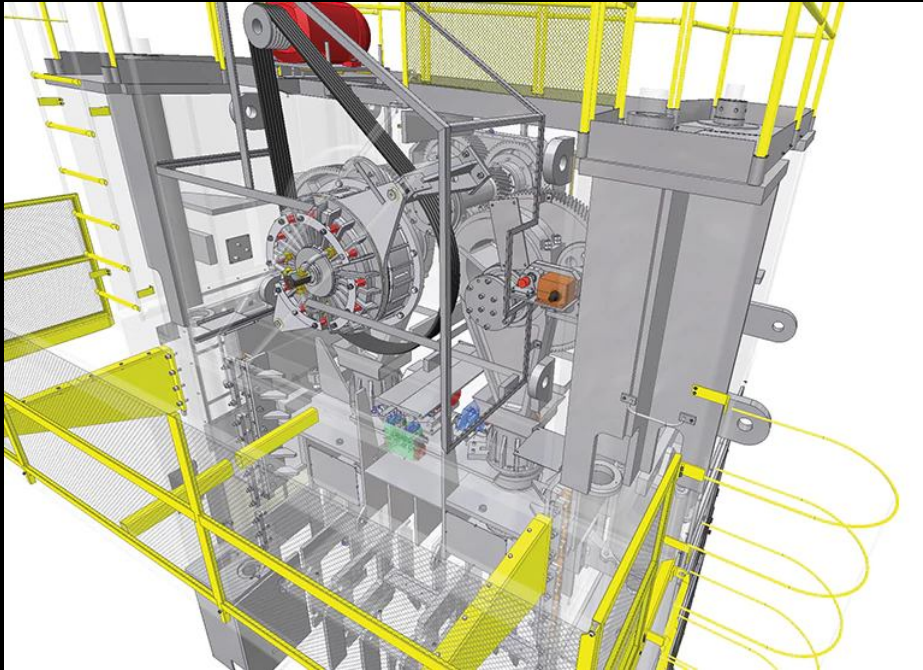


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# APPLICATIONS

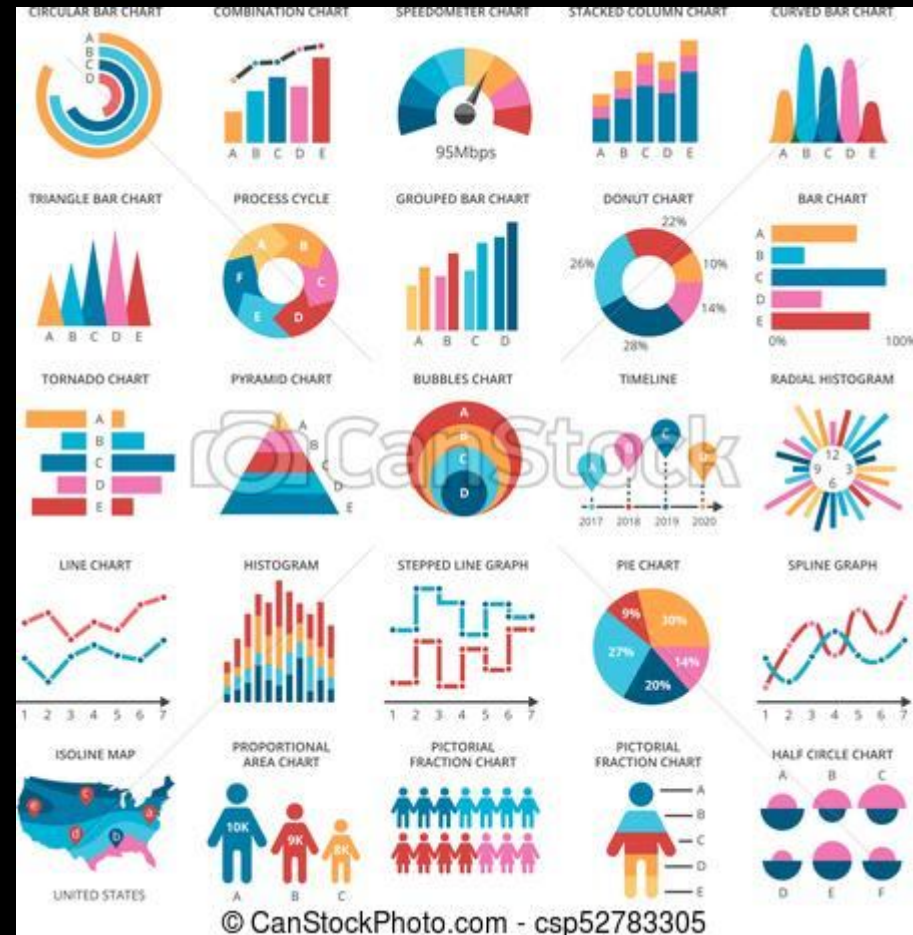
# COMPUTER AIDED DESIGN



[https://www.google.com/url?sa=i&source=images&cd=&cad=rja&uact=8&ved=2ahUKEwjxk\\_CDqaXcAhXE0o8KHUA8BR8Qjhx6BAGBEAM&url=https%3A%2F%2Fwww.autodesk.in%2F%2Fsolutions%2Fcad-software&psig=AOvWaw0ltCBdHvqLRJudX-cDWWmY&ust=1531888895760352](https://www.google.com/url?sa=i&source=images&cd=&cad=rja&uact=8&ved=2ahUKEwjxk_CDqaXcAhXE0o8KHUA8BR8Qjhx6BAGBEAM&url=https%3A%2F%2Fwww.autodesk.in%2F%2Fsolutions%2Fcad-software&psig=AOvWaw0ltCBdHvqLRJudX-cDWWmY&ust=1531888895760352)

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# PRESENTATION GRAPHICS



[https://www.google.com/imgres?imgurl=https%3A%2Fmicro-vector%2F320139-Business-meeting-presentation&docid=QLKD3v7M6t8tbnrdonf1QcRrP7PM%3A&view=1ohUjKEWjyJorjga3cANJR4480z2\\_WBYQMwOKBwEg.&w=580&h=408&biw=538&bih=141&icq=presentation%20graphics&ved=0ahUjKEWjyJorjga3cANJR4480z2\\_WBYQMwOKBwEg&act=mrc&uct=8](https://www.google.com/imgres?imgurl=https%3A%2Fmicro-vector%2F320139-Business-meeting-presentation&docid=QLKD3v7M6t8tbnrdonf1QcRrP7PM%3A&view=1ohUjKEWjyJorjga3cANJR4480z2_WBYQMwOKBwEg.&w=580&h=408&biw=538&bih=141&icq=presentation%20graphics&ved=0ahUjKEWjyJorjga3cANJR4480z2_WBYQMwOKBwEg&act=mrc&uct=8)

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# ENTERTAINMENT



<https://www.google.com/url?sa=i&source=images&cd=&cad=rja&uact=8&ved=2ahUKEwj4qeuQq6XcAhXDpo8KHtbfBG4Qjh6BAgBEAM&url=https://www.techradar.com/news/2Fgaming/2F10-best-pc-games-the-must-play-titles-you-can-t-afford-to-miss-1292327&psig=AOVaw3o0dErMcTVqLjh6Wk9Kg&ust=1531889448220842>

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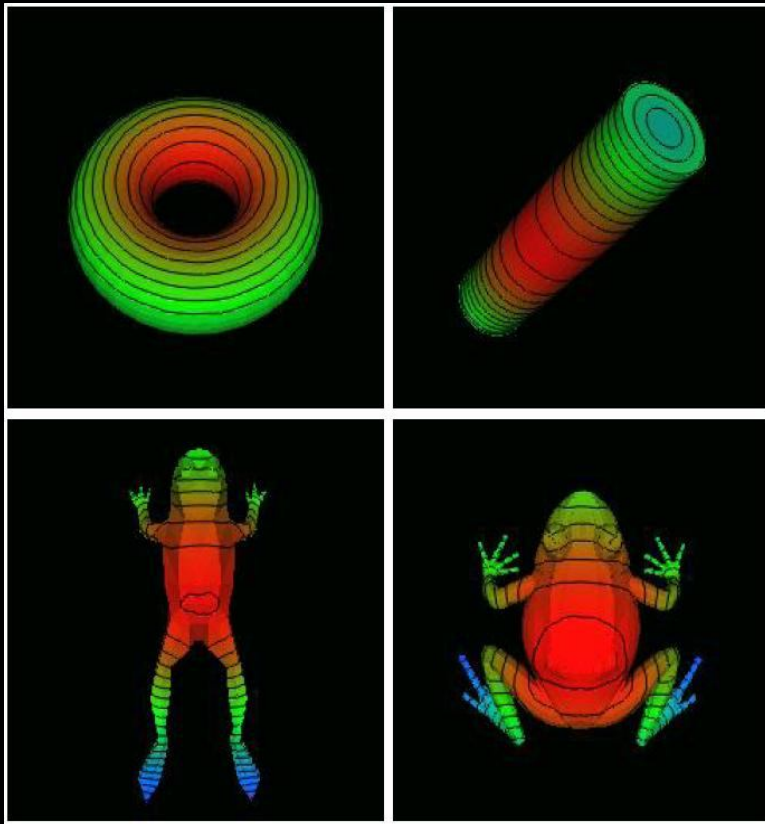
# EDUCATION AND TRAINING

- ◆ Computer Graphics is almost used in every field to teach and train
- ◆ Medicine
  - ◆ Human Anatomy Models
- ◆ Engineering
  - ◆ Animated Models :  
Explaining the working of different models
- ◆ Fashion Designing
  - ◆ Designing and Creating new Patterns



Human Skeleton

# VISUALIZATION

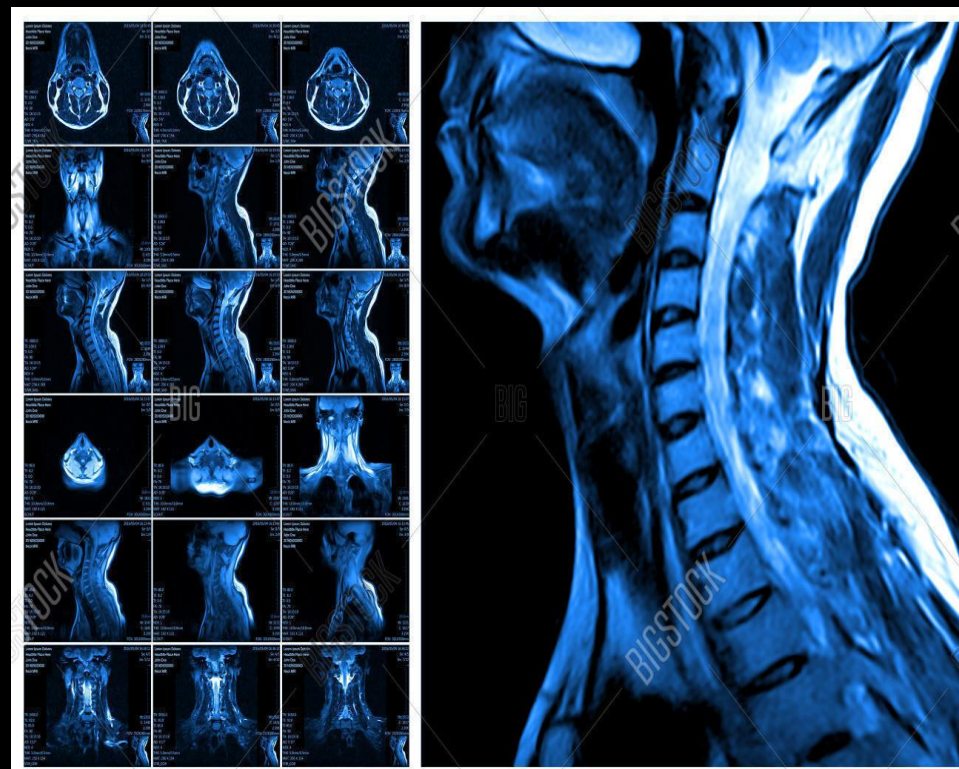
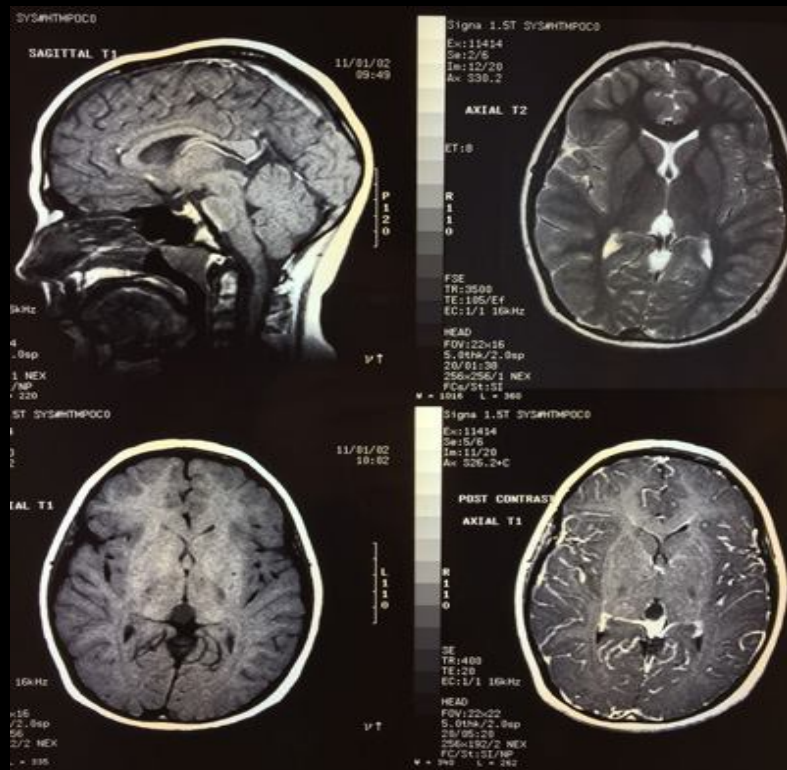


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# IMAGE PROCESSING



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# GRAPHICAL USER INTERFACE

```
... text.getpa.wikimedia.org ping statistics ...
1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/ndev = 540.528/540.528/540.528/0.000 ms
[root@localhost ~]# pwd
/root
[root@localhost ~]# cd /var
[root@localhost var]# ls -la
total 72
drwxr-xr-x. 10 root root 4096 Jul 30 22:43 .
drwxr-xr-x. 23 root root 4096 Sep 14 20:42 ..
drwxr-xr-x.  2 root root 4096 May 14 00:15 account
drwxr-xr-x. 11 root root 4096 Jul 31 22:26 cache
drwxr-xr-x.  3 root root 4096 May 18 16:03 db
drwxr-xr-x.  3 root root 4096 May 18 16:03 empty
drwxr-xr-x.  2 root root 4096 May 18 16:03 errors
drwxr-xr-x.  2 root gdm 4096 Jun
drwxr-xr-x. 30 root root 4096 May
drwxr-xr-x.  2 root root 4096 May
lnsrwxrwx. 1 root root 11 May
drwxr-xr-x. 14 root root 4096 Sep 14 20:42 log
lnsrwxrwx. 1 root root 10 Jul 30 22:43 mail -> spool/mail
drwxr-xr-x.  2 root root 4096 May 18 16:03 mlt
drwxr-xr-x.  2 root root 4096 May 18 16:03 opt
drwxr-xr-x.  2 root root 4096 May 18 16:03 preserve
drwxr-xr-x.  2 root root 4096 Jul  1 22:11 report
lnsrwxrwx. 1 root root  6 May 14 00:12 run -> ../run
drwxr-xr-x. 14 root root 4096 May 18 16:03 spool
drwxr-xr-x.  4 root root 4096 Sep 12 23:50 tmp
drwxr-xr-x.  2 root root 4096 May 18 16:03 yp
[root@localhost var]# yum search wiki
Loaded plugins: langpacks, presto, refresh-packagekit, remove
rpmfusion-free-updates
rpmfusion-free-updates/primary_db
rpmfusion-nonfree-updates
updates/metalink
updates
# rpmfusion-free-updates
```

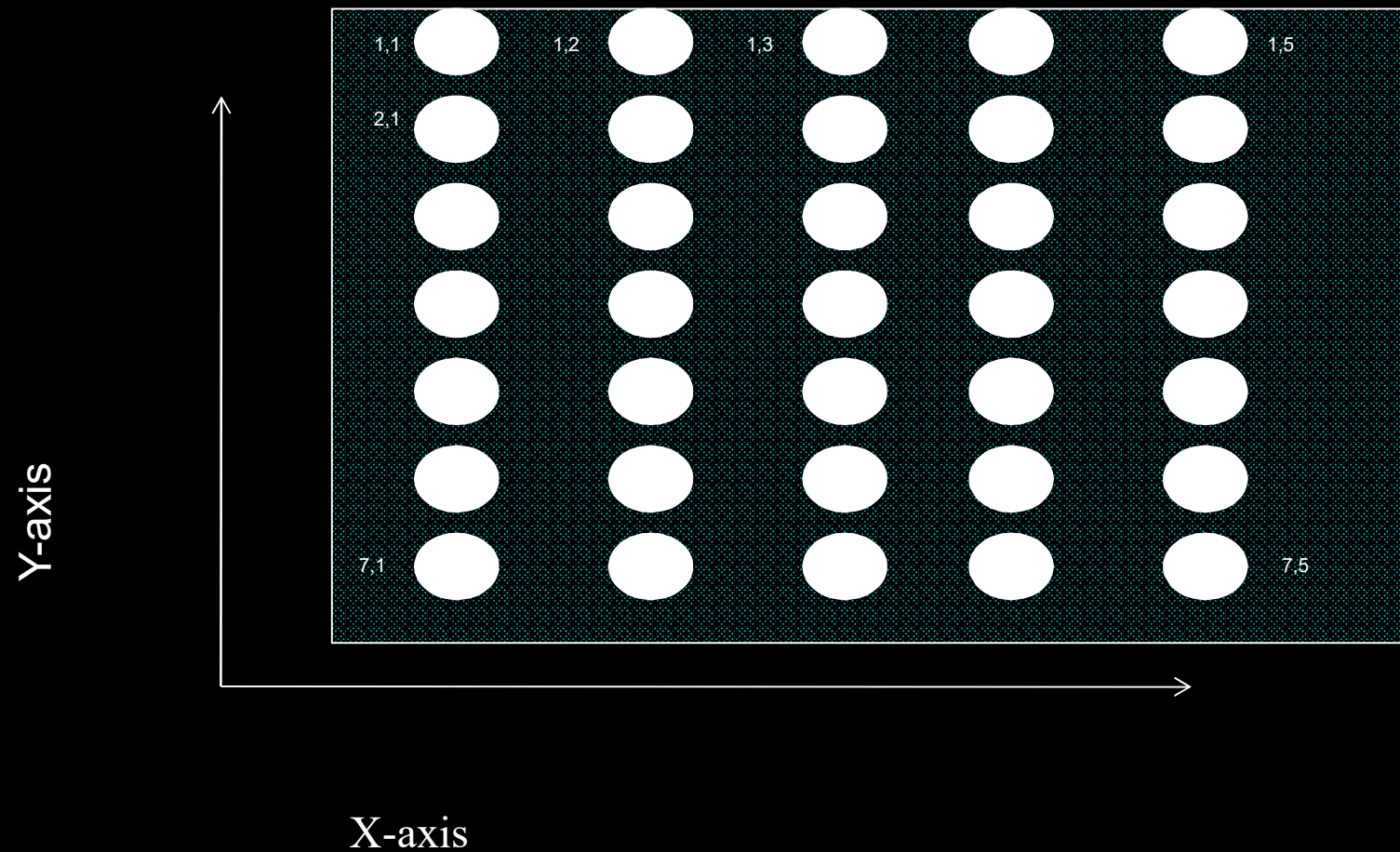
## CLI VS GUI



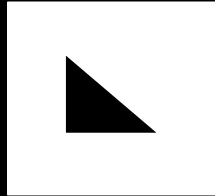
TECHNICAL ASPECT

# GRAPHICS SYSTEM

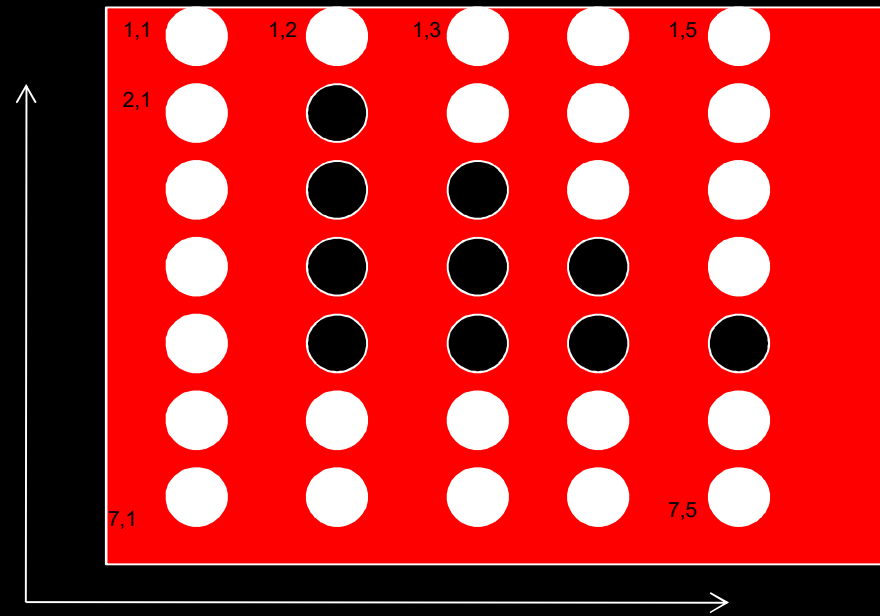
Pictorial data represented by computer system



## MONOCHROME IMAGE



Y-axis

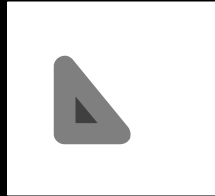


X-axis

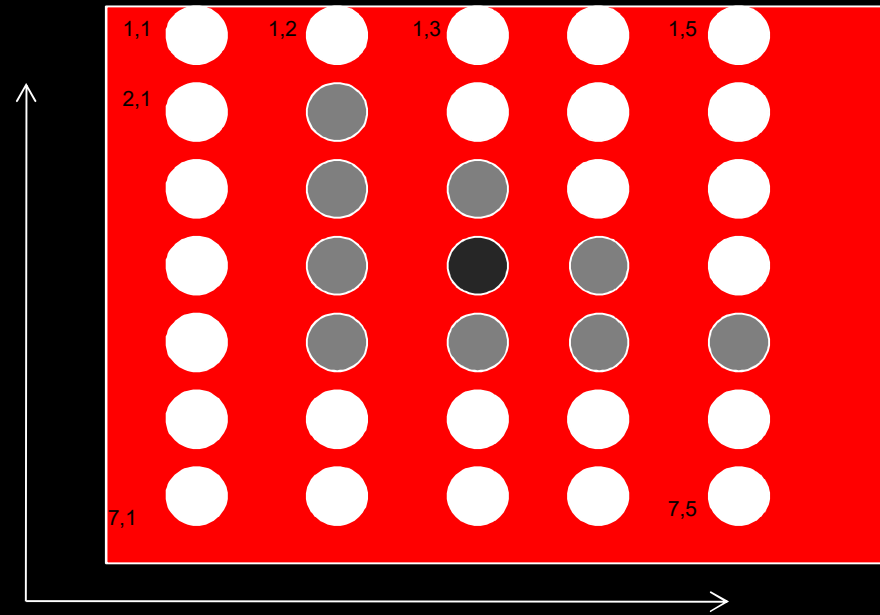
PIXEL(X,Y)	COLOUR
1,1	WHITE
3,2	BLACK
4,2	BLACK
5,2	BLACK
2,1	WHITE
1,2	WHITE
1,3	WHITE
	.
	.
	.



# GRAYSCALE IMAGE



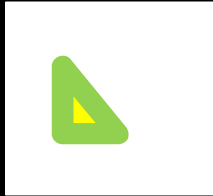
Y-axis



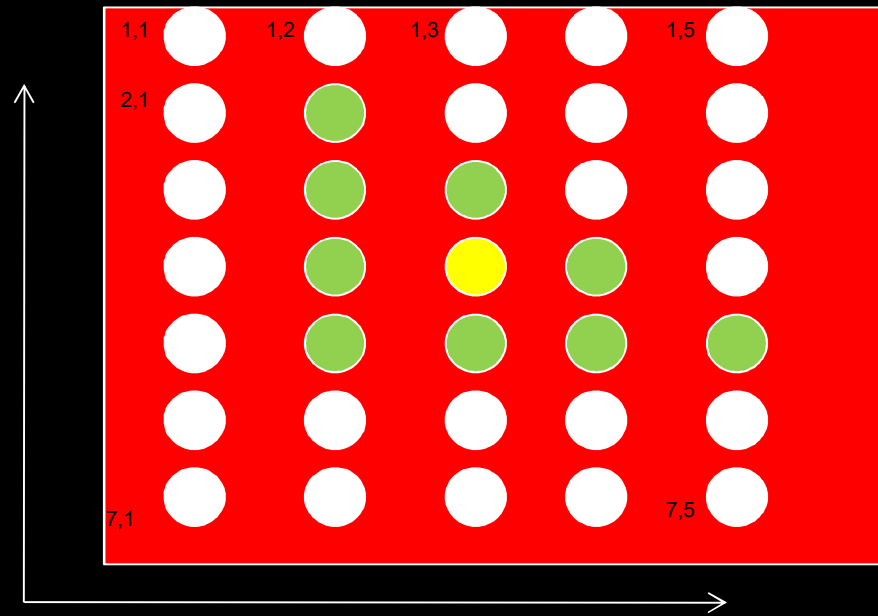
X-axis

PIXEL(X,Y)	COLOUR [ 0 - 255]
1,1	255
3,2	170
4,2	170
4,3	120
2,1	255
1,2	255
1,3	255
	.
	.
	.
	.

## RGB COLOUR IMAGE



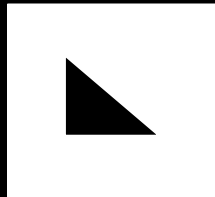
Y-axis



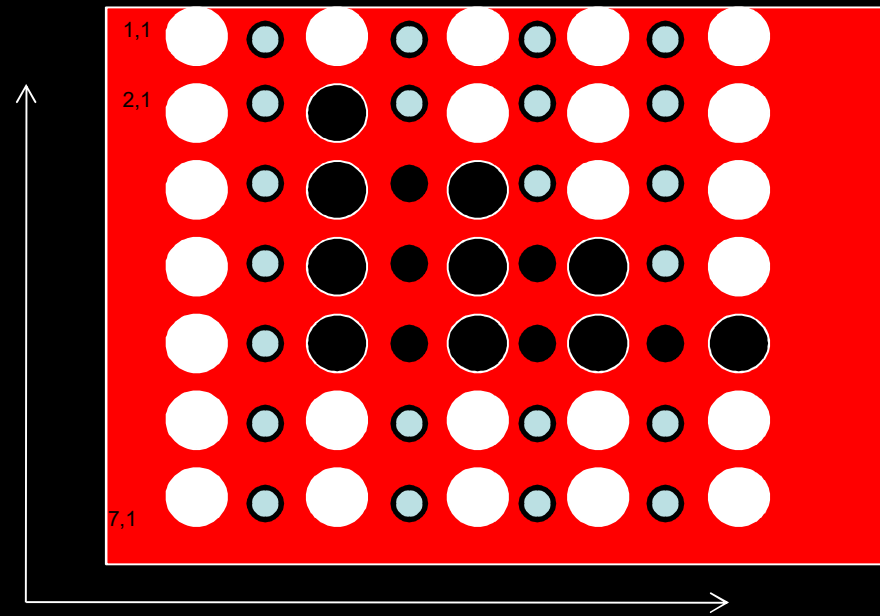
X-axis

PIXEL(X,Y)	COLOUR [0-255, 0-255, 0-255]
1,1	WHITE
3,2	GREEN
4,2	GREEN
4,3	YELLOW
2,1	WHITE
1,2	WHITE
1,3	WHITE
	.
	.
	.

# IMAGE WITH MORE PIXELS



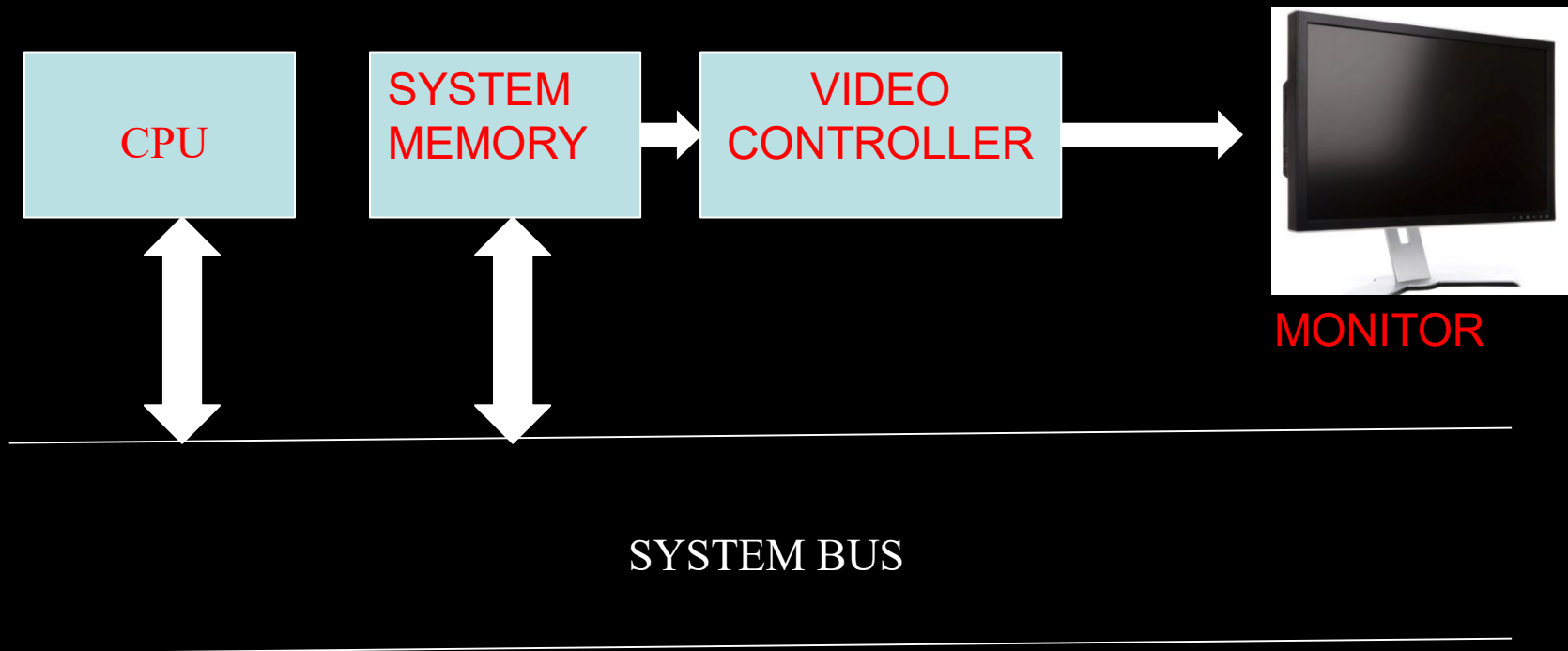
Y-axis



X-axis

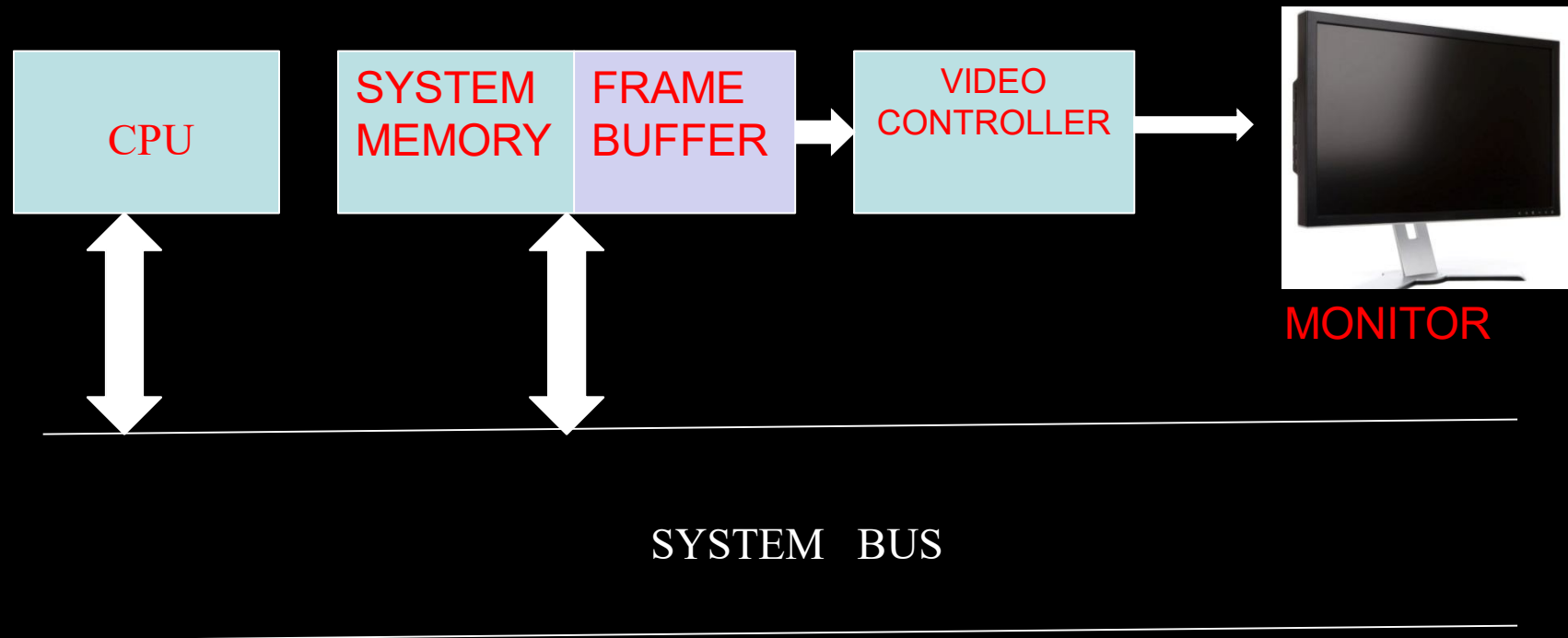
PIXEL(X,Y)	COLOUR [0 -1]
1,1	
3,2	
4,2	
5,2	
2,1	
1,2	
1,3	.
	.
	.
	.
	.

# SIMPLE DISPLAY SYSTEM

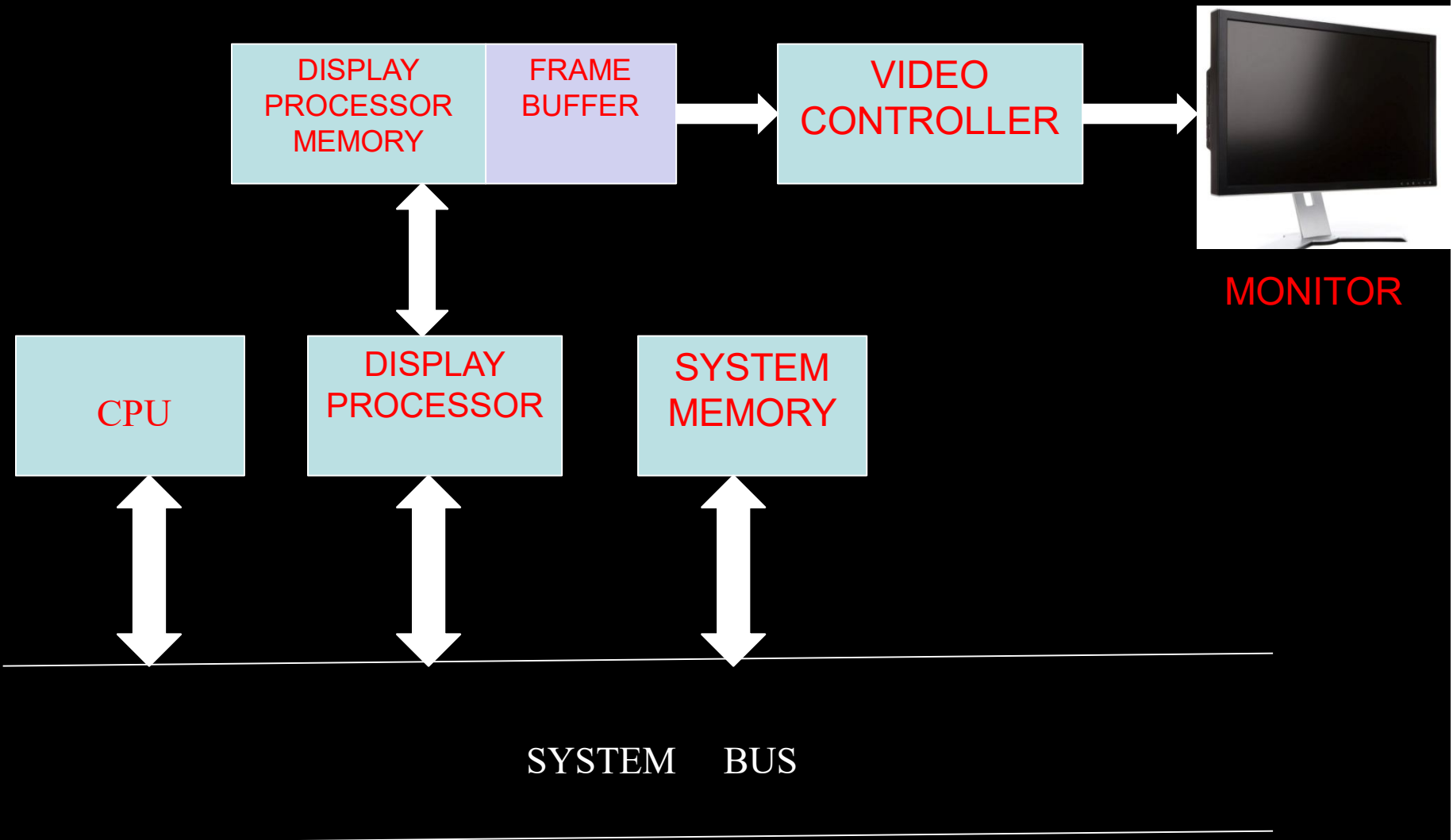




# DISPLAY SYSTEM WITH DEDICATED FRAME BUFFER INSIDE MEMORY



# DISPLAY SYSTEM WITH SEPARATE GRAPHICS PROCESSOR



# **RESOLUTION**

(How many dots on the screen)

1. 800x600
2. 1024 x 768

The Graphics card and the monitors must be capable of supporting the chosen resolution.

## **BIT DEPTH**

The number of bits used to describe a pixel is known as its **bit depth**.

<b>IMAGE</b>	<b>BIT DEPTH</b>	<b>No. OF COLOURS</b>
MONOCHROME	1	2
GRAYSCALE	8	256
RGB	24	256 x 256 x 256