MSMS - 105

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Assignment 02

❖ **Objective :** To design and develop an animated plot that visually represents the progress of loading.

⊕ ***Idea*** : We try to animate a ball falling from top and it gets bigger as it falls. The balls get stacked in 10 layers each with 10 balls representing a total of 100 percent. **RED**, **YELLOW**, **CYAN**, **BLUE**, **GREEN** layers respectively denote **20**, **40**, **60**, **80**, **100** percentage of total loading done.

⊕ ***Implementation*** :

```
pause <- function(seconds) {
  start <- Sys.time()
  while((Sys.time() - start) < seconds) {}
}
```

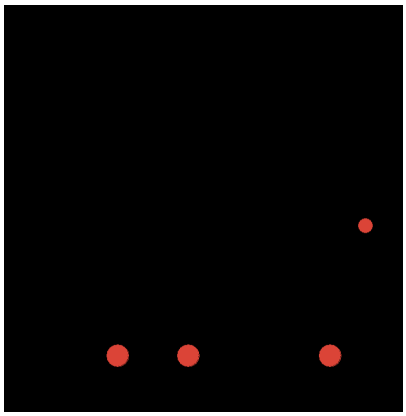
```
par(bg = "black")
plot(NA, NA,
     xlim = c(1, 10),
     ylim = c(1, 10),
     xaxt = "n",
     yaxt = "n",
     xlab = "",
     ylab = "")
```

```
ball_colors <- rep(c("#DB4437", "#F4B400", "#08e2f0", "#4285F4", "#0F9D58"),
                   rep(2, 5))
```

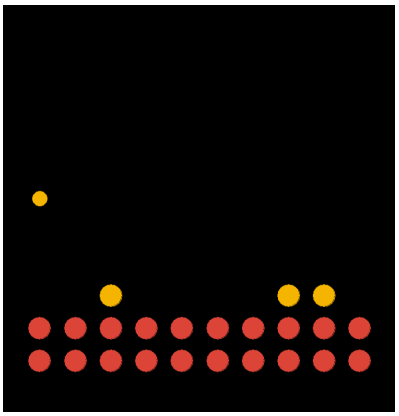
```
for (t in 1:10) {
  pop <- 1:10

  for(k in 1:10){

    if(k < 10){
      num <- sample(pop, 1)
    } else{
      num <- pop[1]
    }
```

```
    cl <- rep("black", 10-t+1)

    for (m in 1:(10-t+1)) {
      cl[m] <- ball_colors[t]
      if(t != 10){
        points(x = rep(num, length(10:t)),
               y = 10:t,
               col = cl,
               pch = 19,
               cex = seq(1, 4, length = 10-t+1))
      } else{
        points(x = num, y = 10, col = cl, pch = 19, cex = 4)
      }
      pause(0.15)
      cl <- rep("black", 10-t+1)
    }

    index <- which(pop == num)
    pop <- pop[-index]
  }
}
```

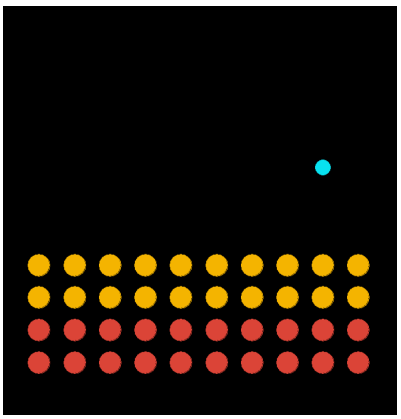
Stages of the Animation :



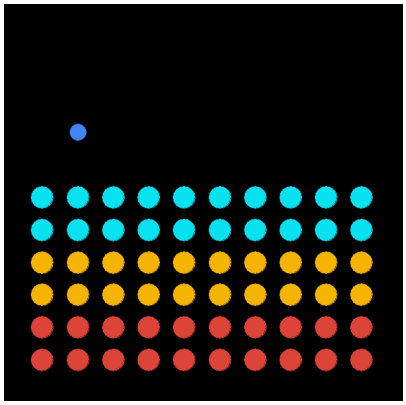
3 % done and in-progress



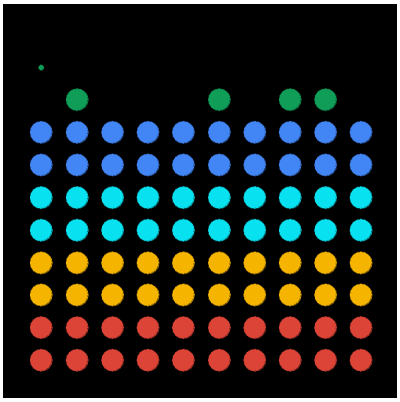
20 % done and in-progress



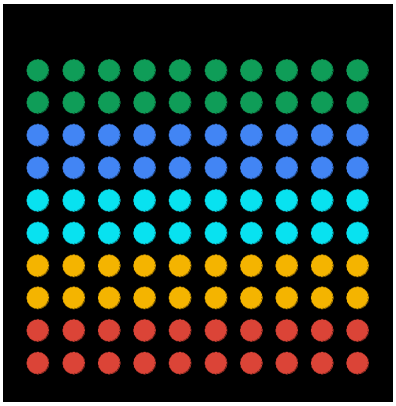
40 % done and in-progress



60 % done and in-progress



80 % done and in-progress



100 % done