

**1. The maximum temperature in centigrade in a week is given as 35,42,38,25,28,36,40. Draw the bar plot for the given data with title "Temperatures in a Week", xlabel should be "Degree Centigrade", ylabel should be "Day" and names should be displayed for each bar of barplot as ("Sun", "Mon", "Tue", "Wed", "Thu", "Fri", "Sat")**

```
temperatures <- c(35, 42, 38, 25, 28, 36, 40)
```

```
days <- c("Sun", "Mon", "Tue", "Wed", "Thu", "Fri", "Sat")
```

```
barplot(temperatures, names.arg = days, xlab = "Degree Centigrade", ylab = "Day", main = "Temperatures in a Week")
```

**2. write R code for the given problem**

**Assuming students having roll numbers in a particular class from 1 to 60. The roll numbers of students who are absent for a particular class on monday are 1,2,8,9,11,13,14,17,20,22,24,25, 26,29,32,36,45,47,49,50,53,54,58.print the roll numbers who are present.**

```
all_roll_numbers <- 1:60
```

```
absent_roll_numbers <- c(1, 2, 8, 9, 11, 13, 14, 17, 20, 22, 24, 25, 26, 29, 32, 36, 45, 47, 49, 50, 53, 54, 58)
```

```
present_roll_numbers <- setdiff(all_roll_numbers, absent_roll_numbers)
```

```
print(present_roll_numbers)
```

**3. write R code to generate students t test for the given problem The life time of electric bulbs for a random sample of 10 from a large consignment gave the following data.**

**x 68 64 75 50 64 80 75 40 55 64**  
**y 62 58 68 45 81 60 68 48 58 70**

**Can we accept the hypothesis that the average life time of bulbs is 4,000 hours.**

```
x <- c(68, 64, 75, 50, 64, 80, 75, 40, 55, 64)
y <- c(62, 58, 68, 45, 81, 60, 68, 48, 58, 70)

# Perform the t-test
t_result <- t.test(x, y)
p_value <- t_result$p.value
alpha <- 0.05
if (p_value < alpha) {
  cat("Reject the null hypothesis. The average lifetime of bulbs is not 4,000 hours.")
} else {
  cat("Accept the null hypothesis. There is not enough evidence to conclude that the average
lifetime of bulbs is different from 4,000 hours.")
}
```

**4. Implement K-Means algorithm on iris dataset.**

```
library(cluster)
data(iris)
set.seed(123)
features <- iris[, 3:4]
k <- 3
kmeans_result <- kmeans(features, centers = k)
clusplot(features, kmeans_result$cluster, color = T, shade = T)
```