```
# Q1 = Write R Program to check a leap year

year = as.integer(readline('Enter a year '))
if(((year %% 4) == 0 )  & ((year %% 100) != 0)){
  print(paste(year,"is a leap year"))
  }else if(((year %% 400) == 0 ) & ((year %% 100)==0)){
    print(paste(year,'is a leap year'))
  }else{
   print(paste(year,'is not a leap year'))
  }



# Q2 = Write R Program to find ther factors of number

num = as.integer(readline('Enter a number '))
for (i in 1:num){
  if((num %% i)==0){
    print(i)
  }
}



# Q3 = Write R Program to ginf nth highest bvalue in a given vector

x <- c(10,20,30,20,20,25,9,26)
print(x)
n = 1
print(sort(x,TRUE)[n])
n = 2
print(sort(x,TRUE)[n])



# Q4 = Write R Program to find he sum of first N natural Number

num = as.integer(readline(prompt = "Enter a number: "))
if(num < 0) {
  print("Enter a positive number")
} else {
  sum = 0
  while(num > 0) {
    sum = sum + num
    num = num - 1
  }
  print(paste("The sum is", sum))
}



# Q5 = To extract 3rd and 5th row with 1st and 3rd columns from a given
dataframe
```

```
exam_data = data.frame(
  name = c('Anastasia', 'Dima', 'Katherine', 'James', 'Emily', 'Michael',
'Matthew', 'Laura', 'Kevin', 'Jonas'),
  score = c(12.5, 9, 16.5, 12, 9, 20, 14.5, 13.5, 8, 19),
  attempts = c(1, 3, 2, 3, 2, 3, 1, 1, 2, 1),
  qualify = c('yes', 'no', 'yes', 'no', 'no', 'yes', 'yes', 'no', 'no', 'yes')
)
print(exam_data)
result = exam_data[c(3,5),c(1,3)]
print(result)



# Q6 = To replace NA values with 5 in a given dataframe

DF1 = data.frame(C1= c(1, 5, 14, NA, 54), C2= c(9, NA, NA, 3, 42), C3= c(9, 7,
42, 87, NA))
print(DF1)
DF1[is.na(DF1)] = 5
print(DF1)



# Q7 = To add new column in agiven data frame

df <- data.frame(a = c('A', 'B', 'C', 'D', 'E'),
                 b = c(45, 56, 54, 57, 59))

df$new <- c(3,3,6,7,8)

print(df)



# Q8 = To add new row(s) to anexisting data frame

data <- data.frame(x1 = 1:4,
                   x2 = 4:1,
                   x3 = 5:8)
print(data)
new_row <- c(77,88,99)
data1 <- rbind(data,new_row)
print(data1)



# Q9 = To extract or replace parts of factor

library(dplyr)
f <- as.factor(c("a", "b", "c"))
print(f)

f1 <- recode_factor(f, "a" = "x", "b" = "y")
print(f1)
```

```
# Q10 = To find the unique rows in r dataframe

data <- data.frame(Product=c('A', 'A', 'B', 'B', 'C', 'C'),
                   Likeability=c(80, 80, 80, 82, 70, 65),
                   Score=c(31, 31, 33, 33, 33, 23),
                   Quality=c(16, 16, 32, 56, 18, 12))
print(data)

print(unique(data))
```