TMC 204
Statistical Data Analysis with R
R Programming Exercise 2

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Control Structures:

Program to check the leap year or not.

```
# Program to check if the input year is a leap year or not
year = as.integer(readline(prompt="Enter a year: "))
if((year %% 4) == 0) {
  if((year %% 100) == 0) {
    if((year %% 400) == 0) {
      print(paste(year,"is a leap year"))
    } else {
      print(paste(year,"is not a leap year"))
    }
  } else {
    print(paste(year,"is a leap year"))
  }
} else {
  print(paste(year,"is not a leap year"))
}
```

Check whether the given number is Armstrong number or not.

```
# take input from the user
num = as.integer(readline(prompt="Enter a number: "))
# initialize sum
sum = 0
# find the sum of the cube of each digit
temp = num
while(temp > 0) {
digit = temp %% 10
sum = sum + (digit ^ 3)
temp = floor(temp / 10)
}
# display the result
if(num == sum) {
print(paste(num, "is an Armstrong number"))
} else {
print(paste(num, "is not an Armstrong number"))
}
```

Find sum of natural numbers without formula.

```
# take input from the user
num = as.integer(readline(prompt = "Enter a number: "))
if(num < 0) {
print("Enter a positive number")
} else {
sum = 0
# use while loop to iterate until zero
while(num > 0) {
sum = sum + num
num = num - 1
}
print(paste("The sum is", sum))
}
```

Program to print the Fibonacci Series

```
# take input from the user
nterms = as.integer(readline(prompt="How many terms? "))
# first two terms
n1 = 0
n2 = 1
count = 2
# check if the number of terms is valid
if(nterms <= 0) {
print("Please enter a positive integer")
} else {
if(nterms == 1) {
print("Fibonacci sequence:")
print(n1)
} else {
print("Fibonacci sequence:")
print(n1)
print(n2)
while(count < nterms) {
nth = n1 + n2
print(nth)
# update values
n1 = n2
n2 = nth
count = count + 1
}
}
}
```