**R PROGRAMMING LAB**

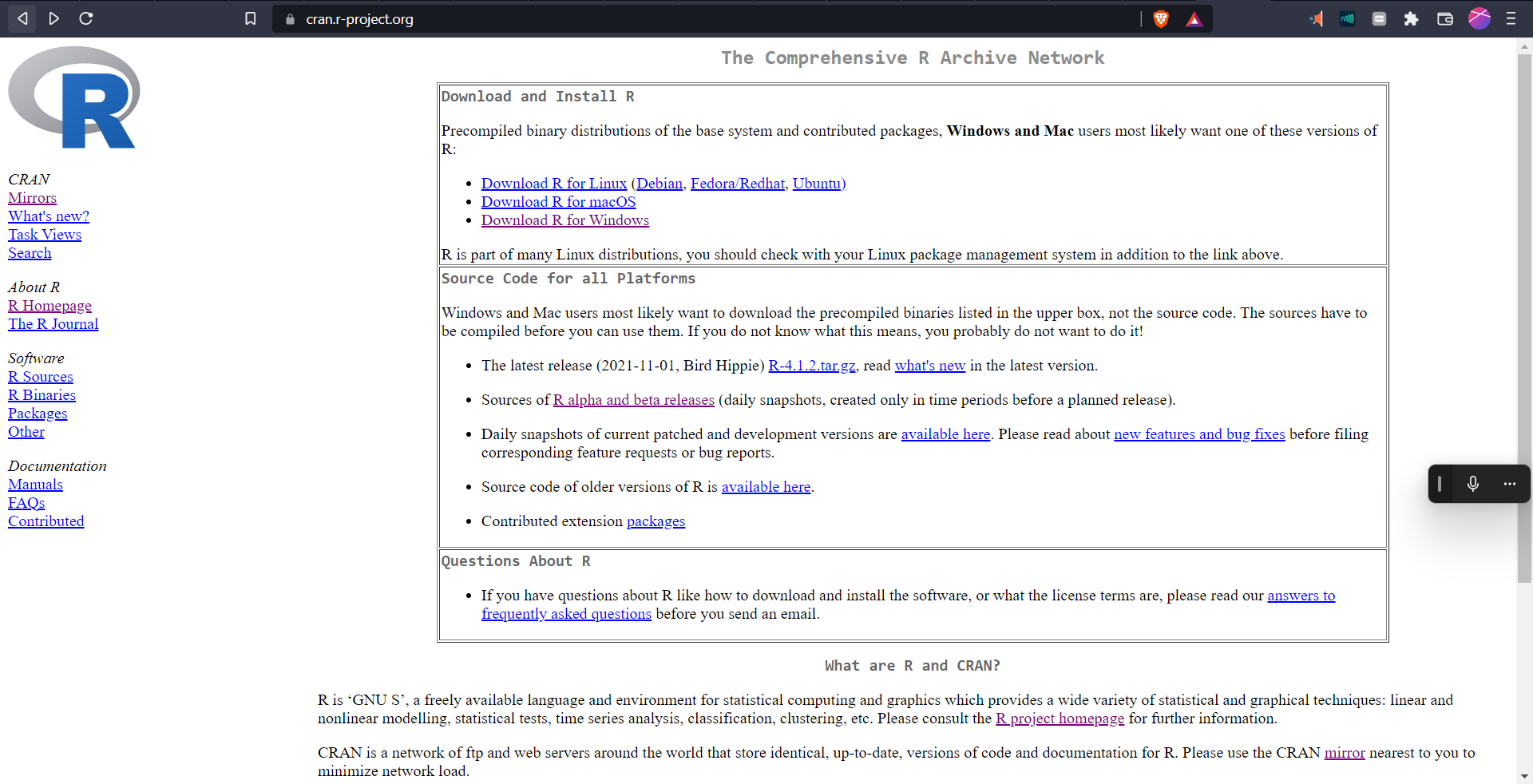
**Week 1**

**Installing R and RStudio on Windows**

To install R and RStudio on windows, go through the following steps:

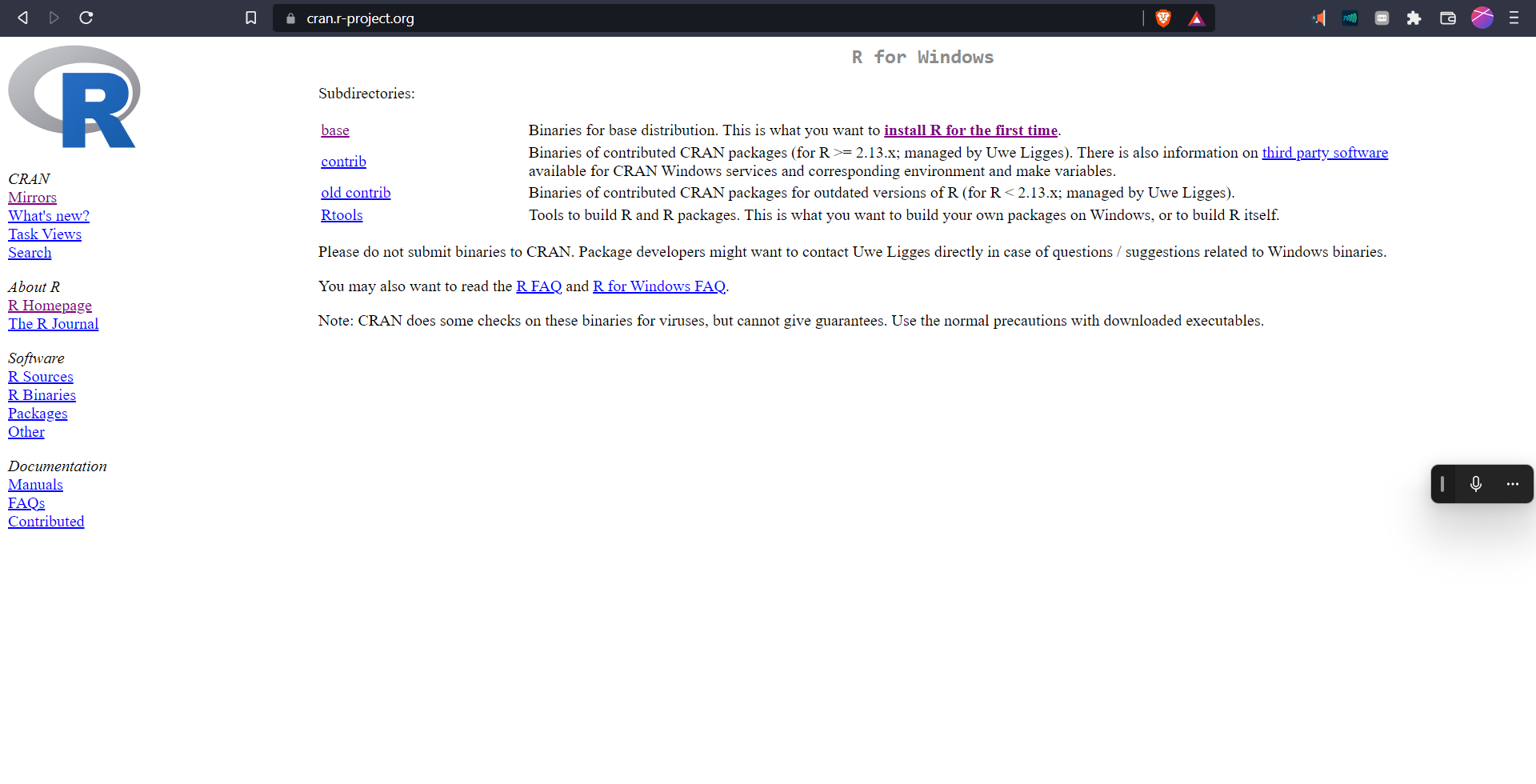
**Install R on windows**

**Step – 1:** Go to [CRAN R project](https://cran.r-project.org/) website.

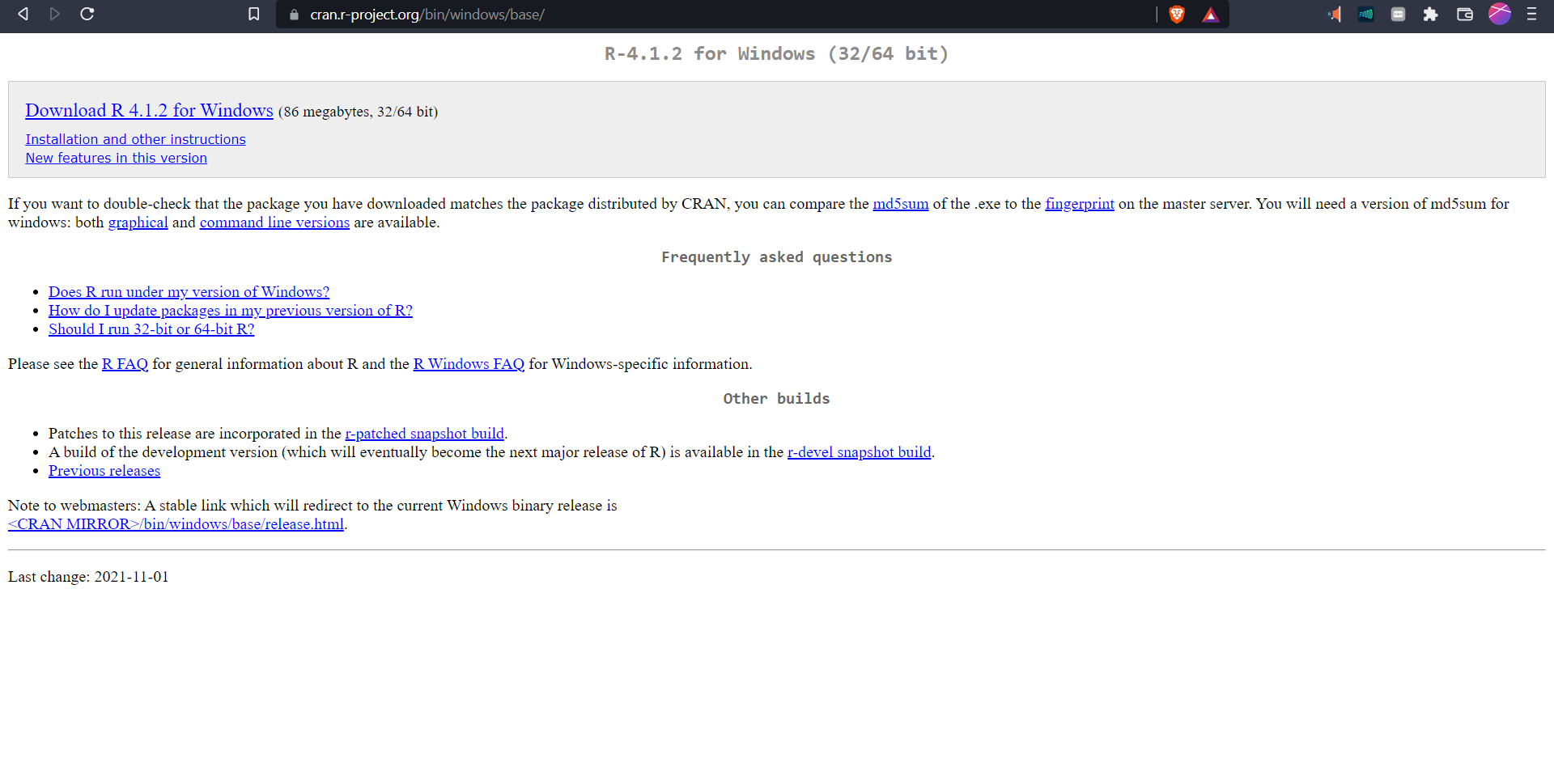


**Step – 2:** Click on the Download R for Windows link.

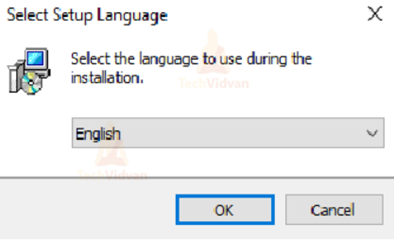
**Step – 3:** Click on the base subdirectory link or install R for the first time link.



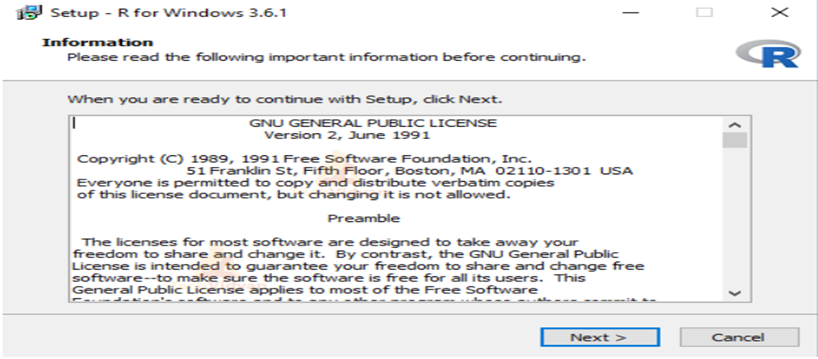
**Step – 4:** Click Download R X.X.X for Windows (X.X.X stand for the latest version of R. eg: 4.1.2) and save the executable .exe file.



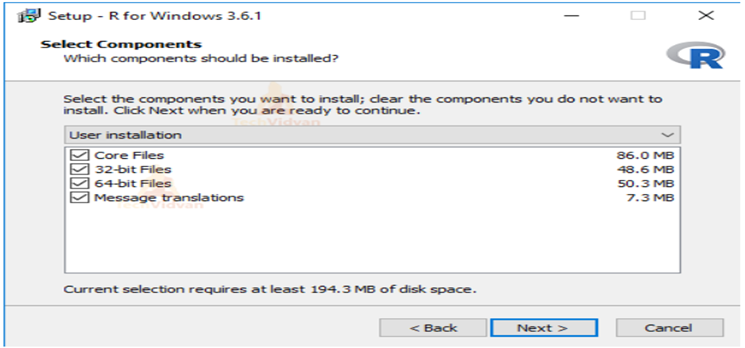
**Step – 5:** Run the .exe file and follow the installation instructions.



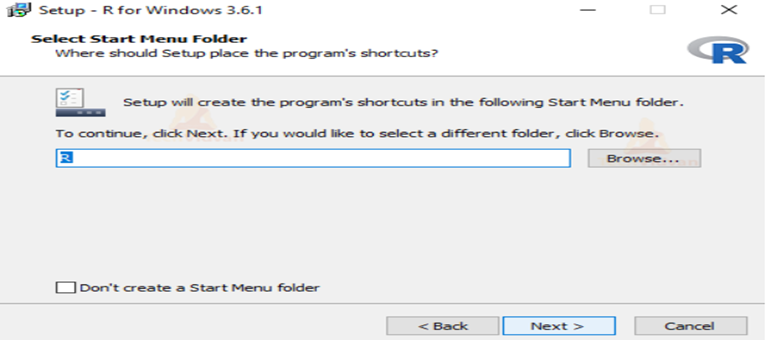
**5.b.** Read the license agreement and click Next.



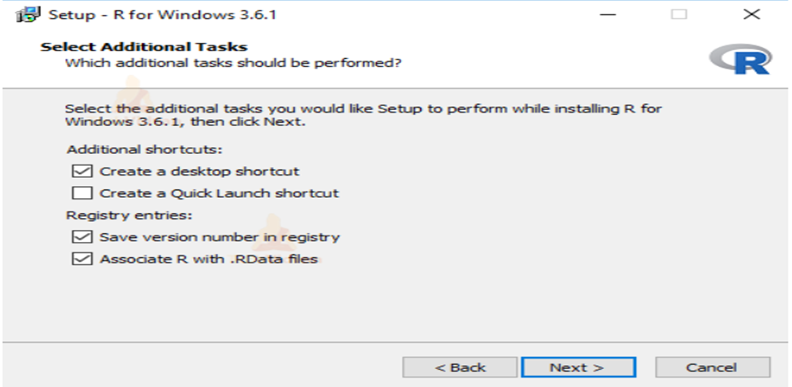
**5.c.** Select the components you wish to install (it is recommended to install all the components). Click Next.



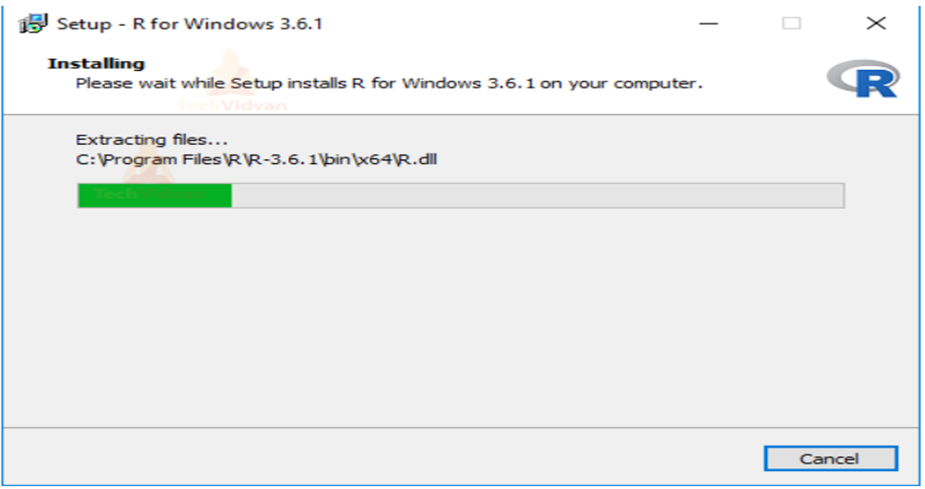
**5.d.** Enter/browse the folder/path you wish to install R into and then confirm by clicking Next.



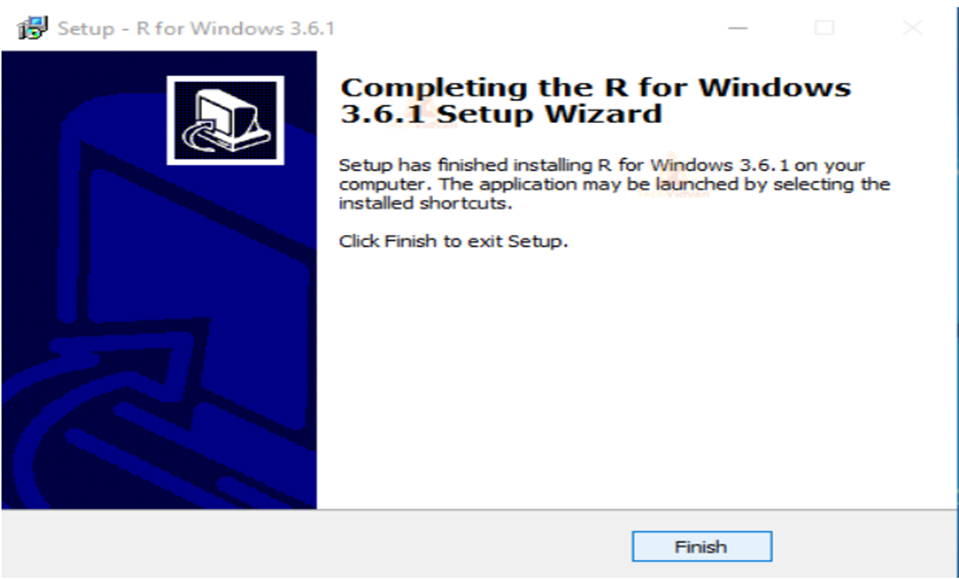
**5.e.** Select additional tasks like creating desktop shortcuts etc. then click Next.



**5.f.** Wait for the installation process to complete.



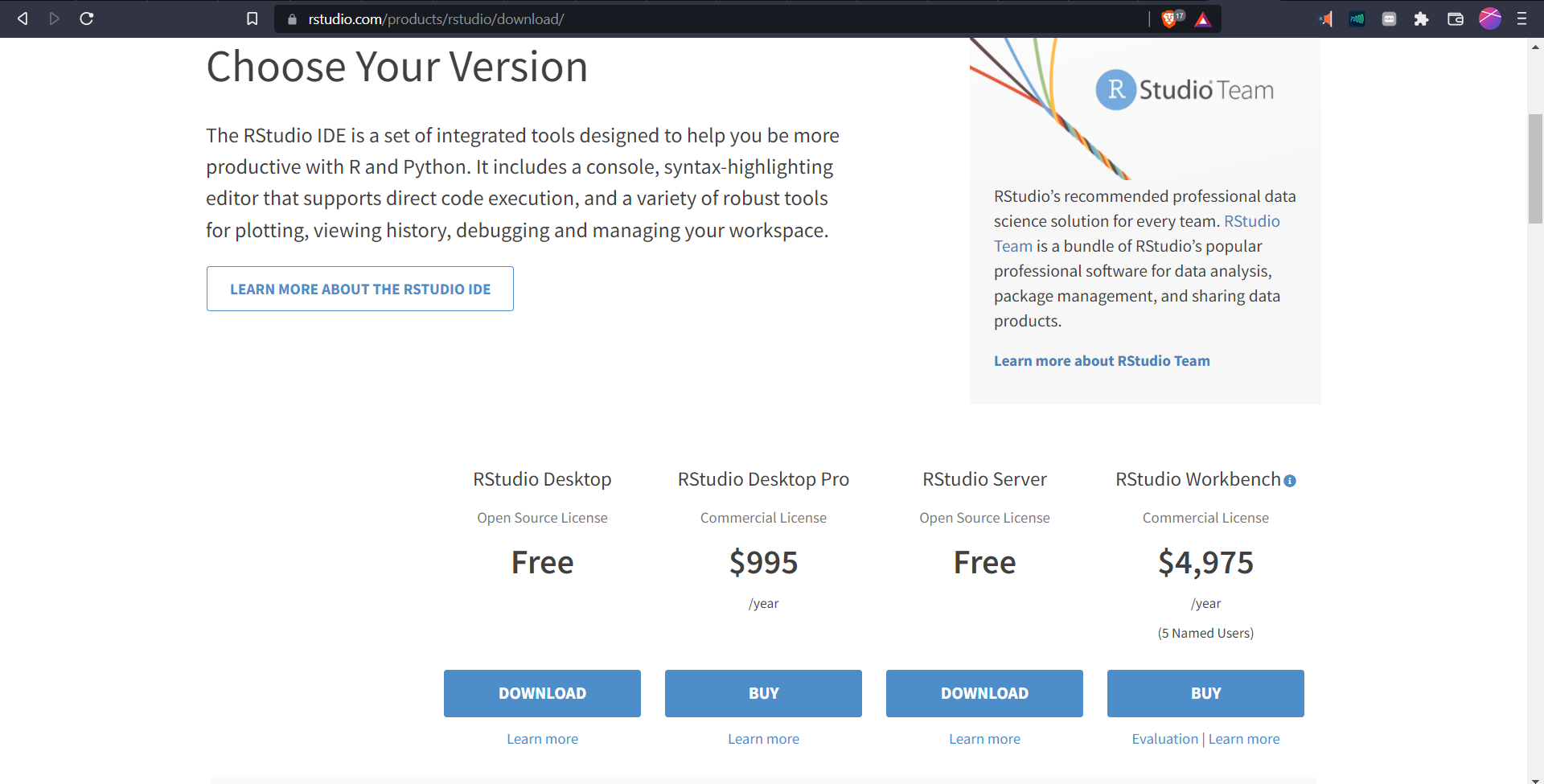
**5.g.** Click on Finish to complete the installation.

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#### **Install RStudio on Windows**

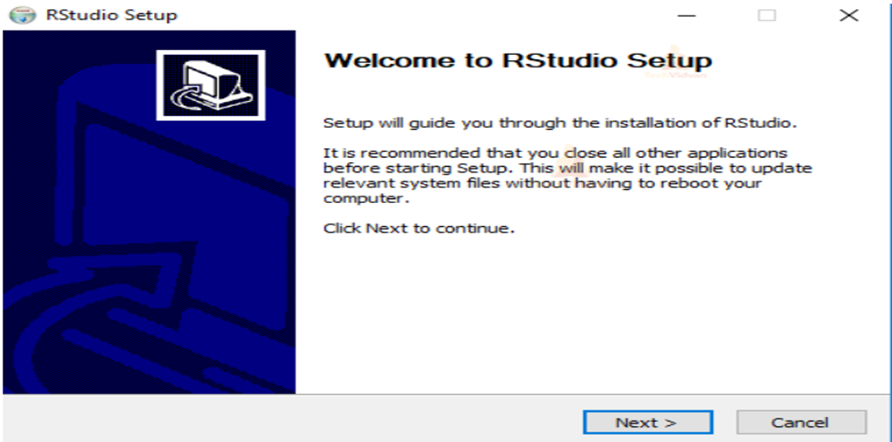
**Step – 1:** With R-base installed, let’s move on to installing RStudio. To begin, go to [download RStudio](https://www.rstudio.com/ide/download) and click on the download button for RStudio desktop.

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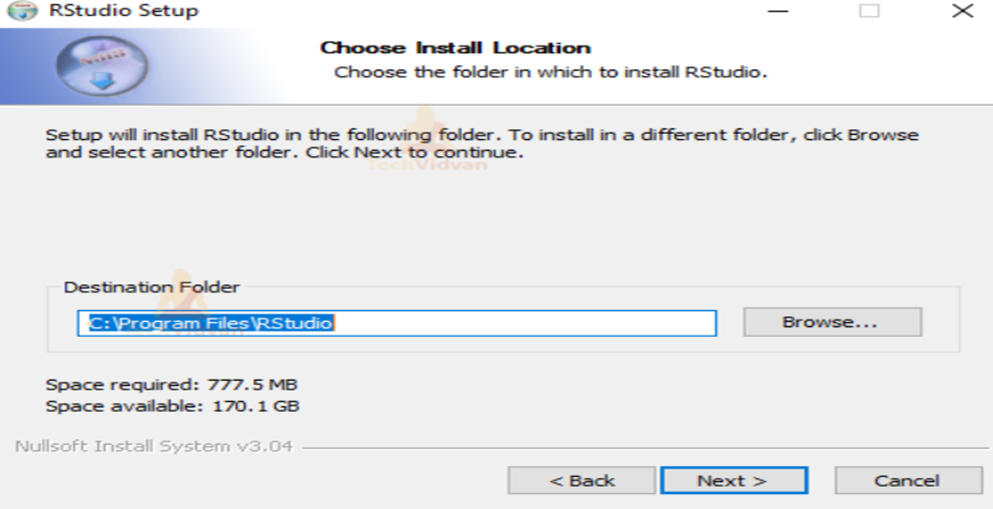
**Step – 2:** Click on the link for the windows version of RStudio and save the .exe file.

**Step – 3:** Run the .exe and follow the installation instructions.

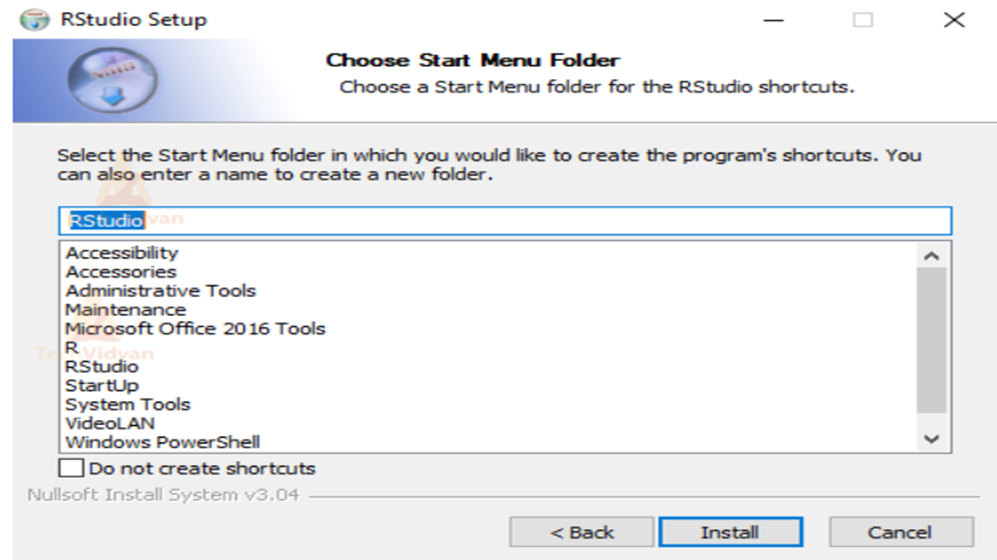
3.a. Click Next on the welcome window.

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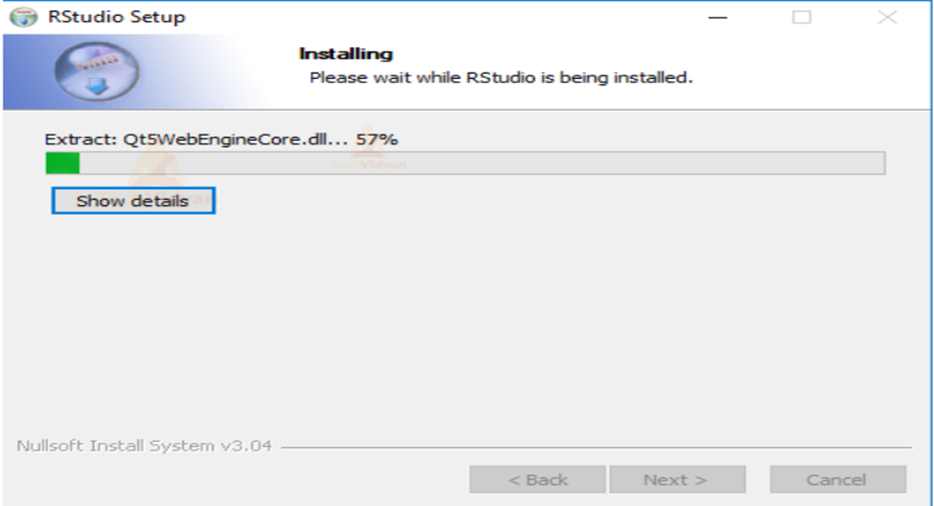
3.b. Enter/browse the path to the installation folder and click Next to proceed.

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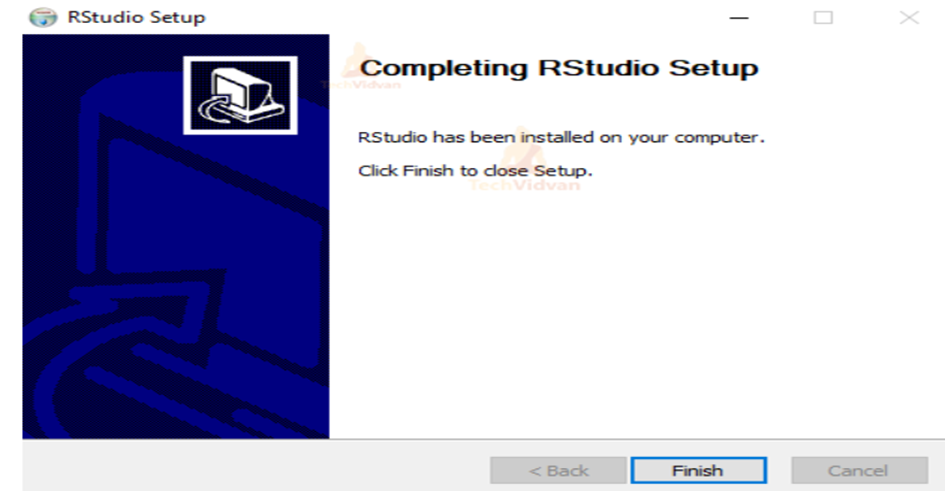
3.c. Select the folder for the start menu shortcut or click on do not create shortcuts and then click Next.

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3.d. Wait for the installation process to complete.

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3.e. Click Finish to end the installation.

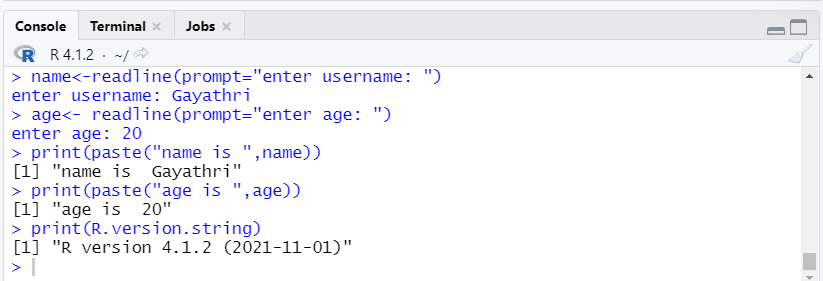
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**AIM:** Write a R program to take input from the user (name and age) and display the values. Also print the version of R installation

**Code:**

name<-readline(prompt="enter username: ")  
age<- readline(prompt="enter age: ")  
print(paste("name is ",name))  
print(paste("age is ",age))

**Output:**

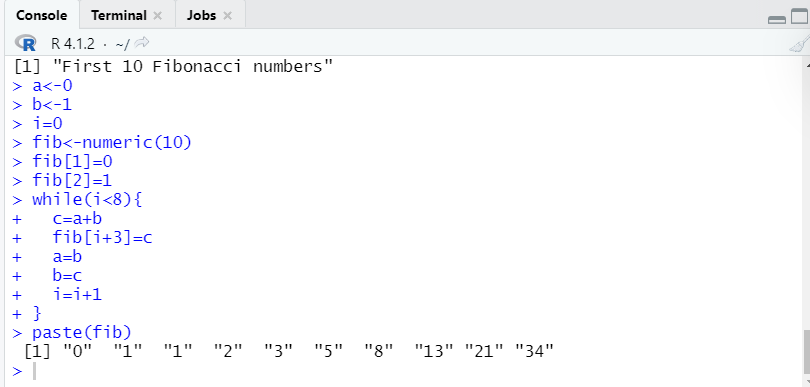


**AIM:** Write a R program to get the first 10 Fibonacci numbers

**Code:**

|  |
| --- |
| print("First 10 Fibonacci numbers") a<-0 b<-1 i=0 fib<-numeric(10) fib[1]=0 fib[2]=1 while(i<8){  c=a+b  fib[i+3]=c  a=b  b=c  i=i+1 } paste(fib) |

**Output:**

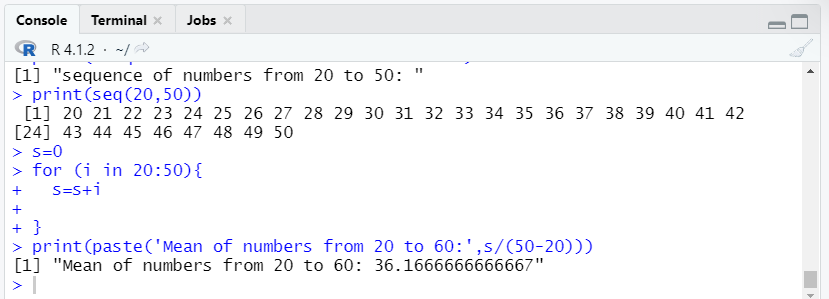


**AIM:** Write a R program to create a sequence of numbers from 20 to 50 and find the mean of numbers

**Code:**

|  |
| --- |
| print('sequence of numbers from 20 to 50: ') print(seq(20,50)) s=0 for (i in 20:50){  s=s+i   } print(paste('Mean of numbers from 20 to 60:',s/(50-20))) |

**Output:**

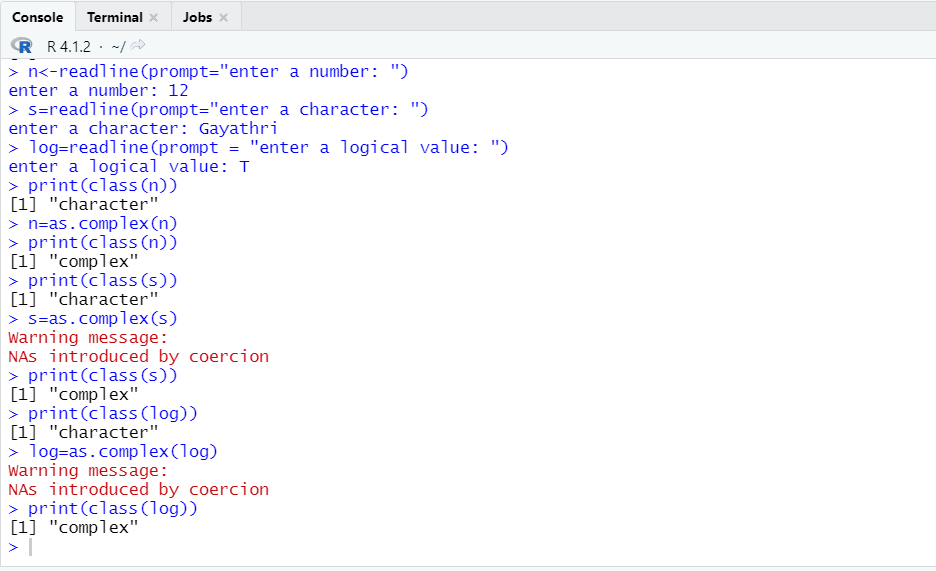


**AIM:** WARP to convert other types of object to complex type

**Code:**

|  |
| --- |
| n<-readline(prompt="enter a number: ") s=readline(prompt="enter a character: ") log=readline(prompt = "enter a logical value: ") print(class(n)) n=as.complex(n) print(class(n)) print(class(s)) s=as.complex(s) print(class(s)) print(class(log)) log=as.complex(log) print(class(log)) |

**Output:**

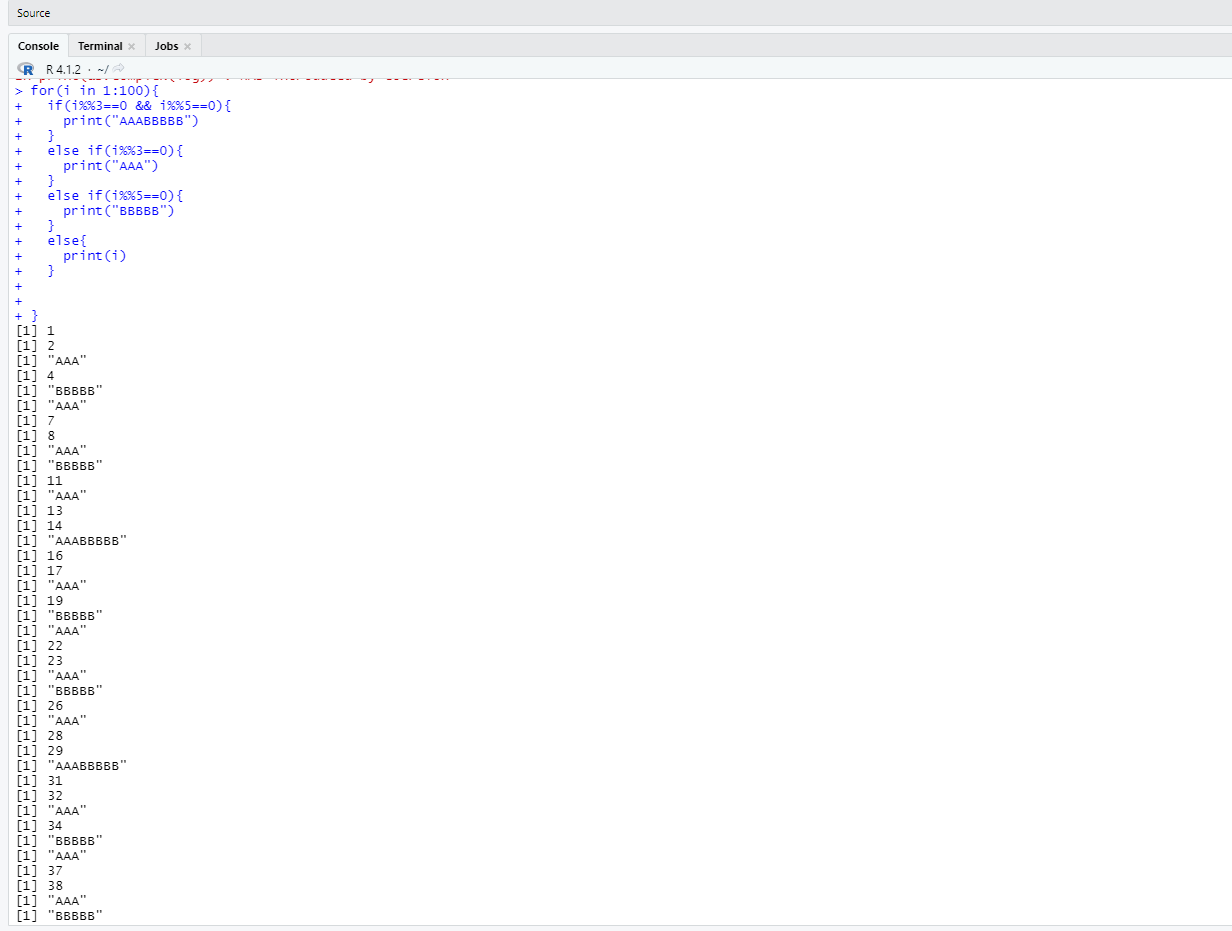
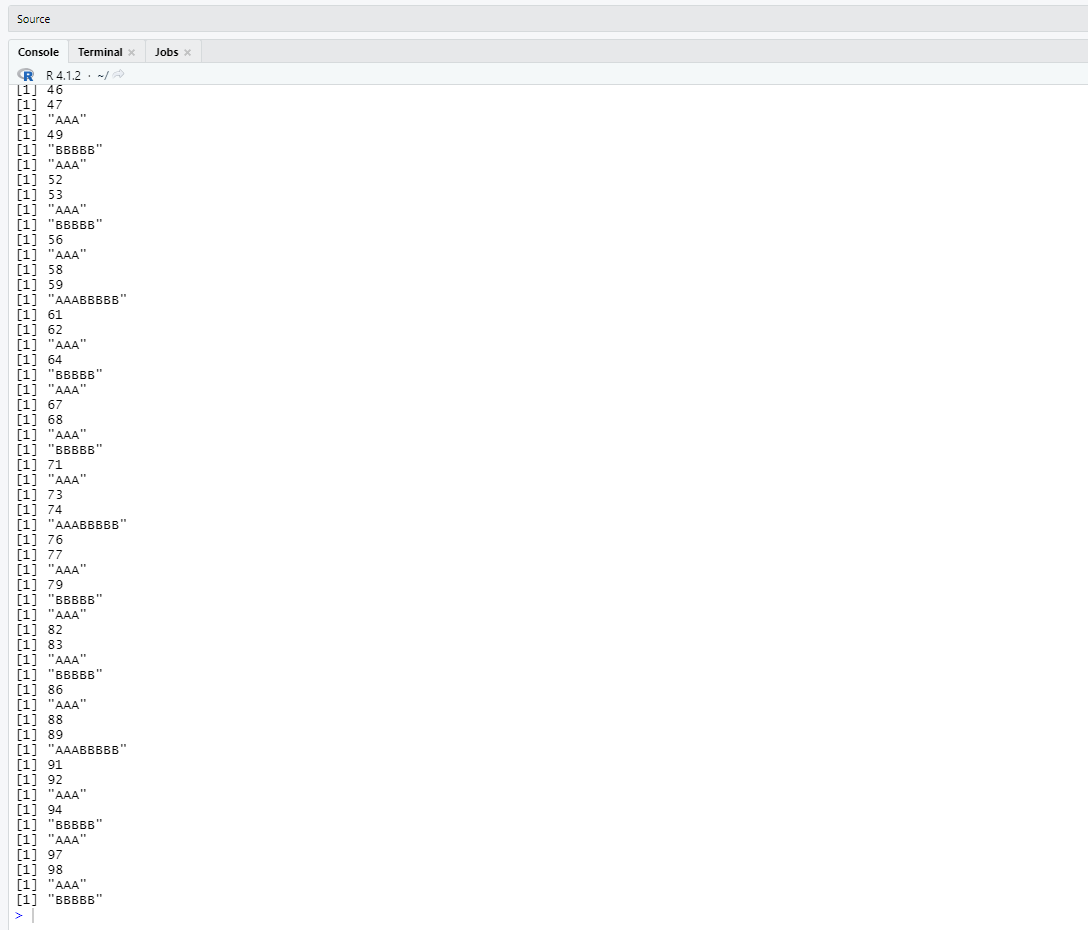


**AIM:** Write a R program to print numbers from 1 to 100 and print “AAA” for multiples of 3, print “BBBBB” for multiples of 5 and print “AAABBBBB” for multiples of both.

**Code:**

|  |
| --- |
| for(i in 1:100){  if(i%%3==0 && i%%5==0){  print("AAABBBBB")  }  else if(i%%3==0){  print("AAA")  }  else if(i%%5==0){  print("BBBBB")  }  else{  print(i)  }  } |

**Output:**

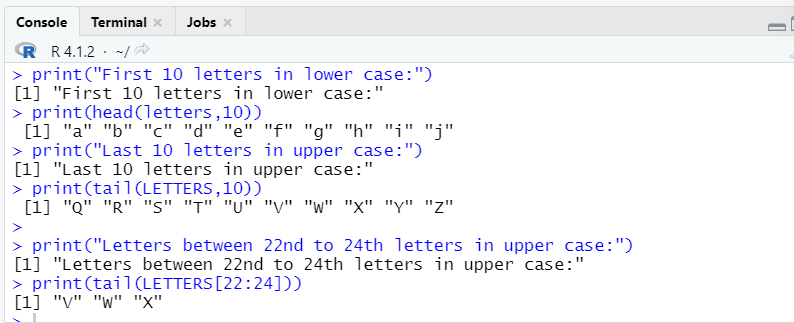
 

**AIM:** Write a R program to extract the first 10 english letters in lowercase and last 10 letters in upper case and extract letters between 22nd to 24th letters in uppercase.

**Code:**

|  |
| --- |
| print("First 10 letters in lower case:") print(head(letters,10)) print("Last 10 letters in upper case:") print(tail(LETTERS,10))  print("Letters between 22nd to 24th letters in upper case:") print(tail(LETTERS[22:24])) |

**Output:**

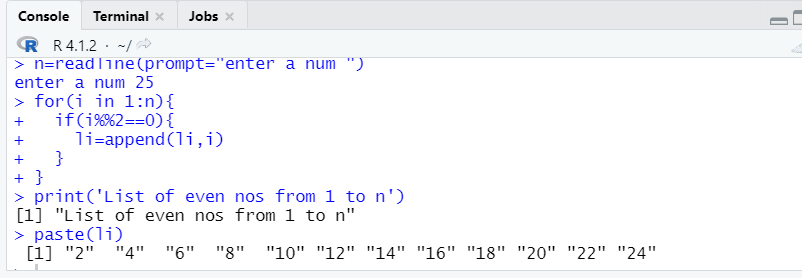


**AIM:** Write a R program to find the list of even numbers from 1 to n.

**Code:**

|  |
| --- |
| li=list() n=readline(prompt="enter a num ") for(i in 1:n){  if(i%%2==0){  li=append(li,i)  } } print('List of even nos from 1 to n') paste(li) |

**Output:**



**AIM:** Write a R program to get all prime numbers up to a given number

**Code**

|  |
| --- |
| print('prime numbers up to a given number,n') n=readline(prompt = "enter a num ") for(i in 2:n){  c=0  for(j in 3:i-1){  #print(j)  #print(paste(i,i%%j,j))  if(i%%j==0){  c=c+1  #print(c)  break  }  }  if(c==0){  print(i)  } } |

**Output:**

