Name ➔ *Himanshu Gaur*

Class ➔ *BTech. 3rd Year { B }*

University RollNo. ➔ *191500343*

Class RollNo. ➔ *'35'*

Subject ➔ *Big Data And Analytics Lab*

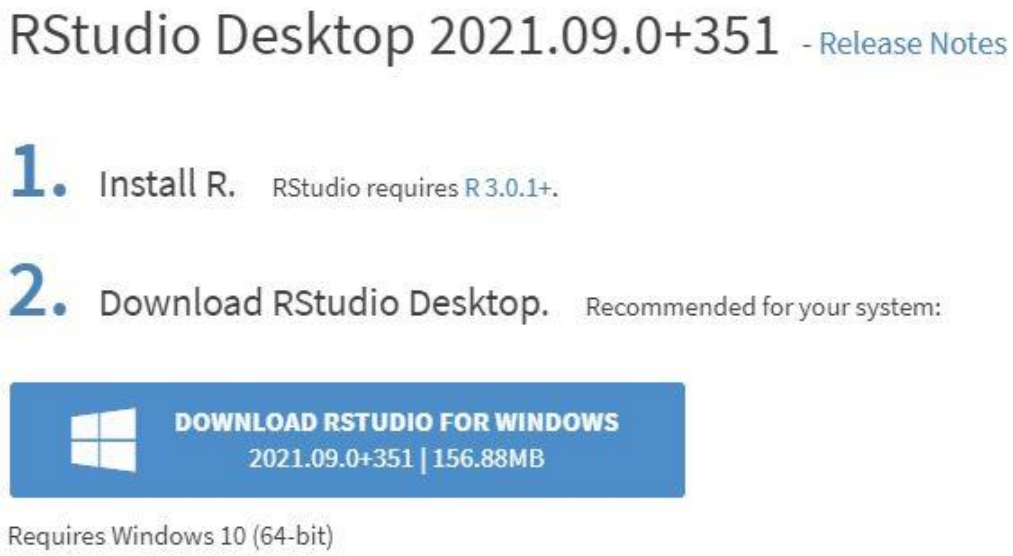
Subject Code ➔ *BCSC 0183*

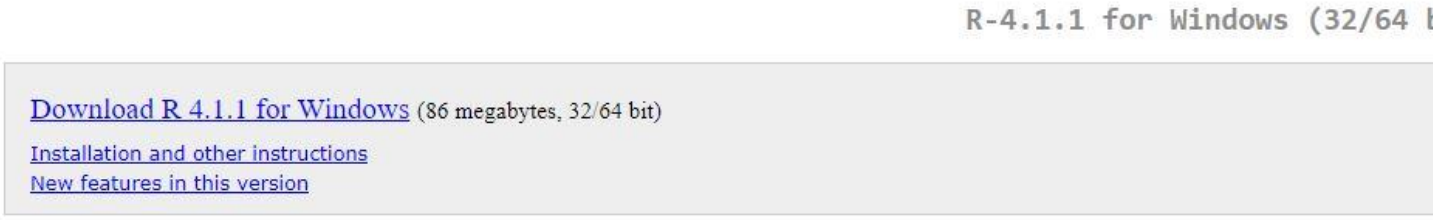
Subject Teacher ➔ *Dr. Robin Singh Bhadoria*

QUS 1➔ Installation of R and R Studio at your respective machine/system. (Use screenshots)

CODE➔

========





QUS 2 ➔ Basic Syntax – "Hello World" using print ( ) function, Addition of two digits, Commenting a line or sentence (both single & multiline).

CODE ➔

========

```
> print("Hello World")
[1] "Hello World"
> 5+5
[1] 10
```

QUS 3 ➔ Declaration of vector, variable name & assignments using number, string with functions like – print ( ), cat ( ), rm ( ).

CODE ➔

========

```
> prime <- c(2,3,5,7)
> print(prime)
[1] 2 3 5 7
> cat(prime)
2 3 5 7
> rm(prime)
> print(prime)
Error in print(prime) : object 'prime' not found
>
```

QUS 4 ➔ R Data Types ➔

- numeric
- integer
- complex
- character
- Logical

CODE ➔

========

```
> x <- 35.65
> class(x)
[1] "numeric"
> x <- 67L
> class(x)
[1] "integer"
> x <- 3i+7
> class(x)
[1] "complex"
> x <- "how are you?"
> class(x)
[1] "character"
> x <- TRUE
> class(x)
[1] "logical"
>
```

QUS 5 ➔ R Operators ➔

CODE ➔

========

- Arithmetic operators

```
> 25+36
[1] 61
> 95-54
[1] 41
> 45*78
[1] 3510
> 625/25
[1] 25
> 34^23
[1] 1.675001e+35
> 94%%4
[1] 2
> 34%/%16
[1] 2
> 
```

- Assignment operators

```
> num <- 45
> num <<- 36
> 92 -> num
> 76 ->> num
> num
[1] 76
>
```

- Comparison operators

```
> 25==25
[1] TRUE
> 67!=43
[1] TRUE
> 98>100
[1] FALSE
> 78<52
[1] FALSE
> 42>=40
[1] TRUE
> 73<=73
[1] TRUE
>
```

- Logical operators

```
>
>
> # R Logical Operators
>
> # R Logical AND operator - Returns TRUE if both statements are TRUE
>
> 50==50 && 40==40
[1] TRUE
>
> # R Logical OR operator. It returns TRUE if one of the statement is TRUE.
> 50==50 || 40==30
[1] TRUE
>
> 50==50 || 40==40
[1] TRUE
>
> 50==30 || 40==30
[1] FALSE
>
>
> Logical NOT - returns FALSE if statement is TRUE
Error: unexpected symbol in "Logical NOT"
> # Logical NOT - returns FALSE if statement is TRUE
> 50!=40
[1] TRUE
>
>
```

- Miscellaneous operators

```
>
>
> # R Miscellaneous Operators
> # Colon operator. It creates the series of numbers in sequence for a vector.
>
> v <- 1:10
> v
 [1]  1  2  3  4  5  6  7  8  9 10
>
>
> # %in% - This operator is used to identify if an element belongs to a vector.
>
> v1 <-8
> v2 <-12
> t <- 1:10
> print(v1 %in% t)
[1] TRUE
> print(v2 %in% t)
[1] FALSE
>
>
>
> # %*% -- This operator is used to multiply a matrix with its transpose.
> M = matrix( c(2,6,5,1,10,4), nrow = 2,ncol = 3,byrow = TRUE)
> t = M %*% t(M)
> print(t)
     [,1] [,2]
[1,]   65   82
[2,]   82  117
>
```