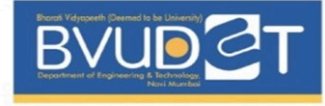# Bharati Vidyapeeth
Deemed to be University

BVUD∂T

Department of Engineering and Technology

Plot no. KC-1, Sector 3, Kharghar, Navi Mumbai-410210

Subject: Computing Lab - III | Experiment No - 01 (3rd YEAR CSE-AIML 2023-2024)

Roll No: 11	Name: Kamran Khan
Class: CSE-AIML	Batch: B1
PRN: 2143110133	Date of Experiment: 05 / 01 / 2024
Marks (Out of 25):	Date of Submission: __ / 01/ 2024

Aim:

To understand and implement basic concepts of R programming including variable assignments, data types, vectors, arithmetic and logical operations, control flow, and data frames.

Theory:

R is a programming language and free software environment for statistical computing and graphics. It is widely used among statisticians and data miners for developing statistical software and data analysis.

```
# Assign Value to Variable
x <- 5
y <- "Kamran Khan"

# Datatypes
datatype_x <- class(x)
datatype_y <- class(y)

print(paste("Datatype of x:", datatype_x))
```

```
## [1] "Datatype of x: numeric"
```

```
print(paste("Datatype of y:", datatype_y))
```

```
## [1] "Datatype of y: character"
```

```
# Vectors
numeric_vec <- c(1, 2, 3, 4)
char_vec <- c("Kamran Khan", "CSE-AIML", "ROll No 11")

print(numeric_vec)
```

```
## [1] 1 2 3 4
```

```r
print(char_vec)
```

```
## [1] "Kamran Khan" "CSE-AIML"    "ROll No 11"
```

```r
# Arithmetic Operation
result <- x + 14

print(paste("Result of arithmetic operation:", result))
```

```
## [1] "Result of arithmetic operation: 19"
```

```r
# logical Operation
is_greater <- x > 3
print(paste("Is x greater than 3:", is_greater))
```

```
## [1] "Is x greater than 3: TRUE"
```

```r
# Control Flow Statements
if(x > 0){
  positive_message <- paste("x is a positive number")
}else{
  positive_message <- paste("x is a negative number")
}

print(positive_message)
```

```
## [1] "x is a positive number"
```

```r
# Dataframe
dataframe <- data.frame(
  Name = c("Kamran", "Shubham", "Sarthak"),
  Age = c(19, 20, 20),
  Branch = c("CSE-AIML", "CSE-AIML", "CSE-AIML")
)
print(dataframe)
```

```
##      Name Age   Branch
## 1  Kamran  19 CSE-AIML
## 2 Shubham  20 CSE-AIML
## 3 Sarthak  20 CSE-AIML
```

```r
print(LETTERS)
```

```
##  [1] "A" "B" "C" "D" "E" "F" "G" "H" "I" "J" "K" "L" "M" "N" "O" "P" "Q" "R" "S"
## [20] "T" "U" "V" "W" "X" "Y" "Z"
```

```r
print(letters)
```

```
##  [1] "a" "b" "c" "d" "e" "f" "g" "h" "i" "j" "k" "l" "m" "n" "o" "p" "q" "r" "s"
## [20] "t" "u" "v" "w" "x" "y" "z"
```

Conclusion:

This experiment introduced the fundamental concepts of R programming. Understanding these basics, such as variable assignment, data types, vectors, arithmetic and logical operations, control flow, and data frames, is crucial for anyone beginning their journey in R programming and data analysis.