```
# Task 1: Create a new script in R Studio and identify the current working directory and save
it to the desired location

##Get Current Working Directory
getwd()

##Saving it to variable name location_wd
location_wd = getwd()

paste(rep("*", 200), collapse = "")
# Task 2: Perform assignment operations by assigning numbers to the variables

##Create 3 variables for operation purpose (x,y,z)

x = 3
y = 5
z = 10

paste(rep("*", 200), collapse = "")
#Task 3: Perform the basic arithmetic operations such as log, sum, and subtraction between two
numbers

## Arithmetic Operation Sum
sum_func = x + y
print(sum_func)
print('-----------------------------------------')

## Arithmetic Operation Subtraction
sub_func = z - y
print(sub_func)
print('-----------------------------------------')

## Arithmetic Operation Multiply
mul_func = z*x
print(mul_func)
print('-----------------------------------------')

## Arithmetic Operation Division
div_func = z/y
print(div_func)
print('-----------------------------------------')

## Logrithmic function
log_func = log(z)
print(log_func)
print('-----------------------------------------')

## Square function
Square_func = z**2
print(Square_func)
print('-----------------------------------------')

paste(rep("*", 200), collapse = "")

# Task 4: Create different types of variables in R (character, numeric, and factor) and check
their class

##Create variable of type character
var_charcter = "Data is the new oil"
print(var_charcter)
print('class of above variable is :')
print(class(var_charcter))

##Create variable of type Numeric
var_numeric <- c(1,2,3)
print(var_numeric)
print('class of above variable is :')
print(class(var_numeric))
```

```
##Create factor variable
my_vector <- c("category1", "category2", "category1", "category3", "category2")
### Convert the vector to a factor variable
var_factor <- factor(my_vector)
print(var_factor)
print('class of above variable is :')
print(class(var_factor))

paste(rep("*", 200), collapse = "")

# Task 5: Create a factor variable with two levels and summarize it
## Create a vector of values
values <- c("Male", "Female", "Male", "Female")

## Create a factor variable
factor_values <- factor(values)

## Summarize the factor variable
summary(factor_values)

paste(rep("*", 200), collapse = "")

# Task 6: Create a factor variable with two levels and summarize it
## Create a character vector
my_char_vector <- c("This", "is", "my", "first", "assignment")

## Create a numeric vector
my_num_vector <- c(1, 2, 3, 4, 5)

## Assign elements to the vectors
my_char_vector[4] <- "second"
print(my_char_vector)
my_num_vector[2] <- 6
print(my_num_vector)

## Summarize the vectors
summary(my_char_vector)
summary(my_num_vector)

paste(rep("*", 200), collapse = "")

# Task 7: Perform mathematical and logical operations on vectors (subtraction, addition,
multiplication, checking simple conditions as true or false, e.g., x>5)

# Subtraction
x <- c(1, 2, 3, 4, 5)
y <- c(6, 5, 4, 3, 2)

subtraction <- x - y
print(subtraction)

## Addition
addition <- x + y
print(addition)

## Multiplication
multiplication <- x * y
print(multiplication)

## Checking simple conditions as true or false
print(x > 5)
y <- 6
print(x > y)

paste(rep("*", 200), collapse = "")

# Task 8: Create new vectors by adding new elements and deleting old elements from existing
vectors
## Create a vector
```

```
x <- c(1, 2, 3, 4, 5)

## Add a new element
x <- c(x, 6)
print(x)

## Delete an element
x <- x[-5]
print(x)

## Create a new vector with the elements of x that are greater than 3
new_vector <- x[x > 3]
print(new_vector)

paste(rep("*", 200), collapse = "")

#Task 9: Sort a numeric vector in ascending and descending order and a character vector in
alphabetical order
## Numeric vector
num_vector <- c(10, 5, 3, 2, 1)

## Sort in ascending order
num_vector_sorted_ascending <- sort(num_vector)
print(num_vector_sorted_ascending)

## Sort in descending order
num_vector_sorted_descending <- sort(num_vector, decreasing = TRUE)
print(num_vector_sorted_descending)

## Character vector
char_vector <- c("a", "c", "b", "d")

## Sort in alphabetical order
char_vector_sorted_ascending <- sort(char_vector)
print(char_vector_sorted_ascending)

## Sort in reverse alphabetical order
char_vector_sorted_descending <- sort(char_vector, decreasing = TRUE)
print(char_vector_sorted_descending)

paste(rep("*", 200), collapse = "")

# Task 10:Create a numeric vector and a user-defined function to compute the mean of the vector
# Create a numeric vector
x <- c(1, 2, 3, 4, 5)

mean_vector <- function(x) {
  sum(x) / length(x)
}

# Compute the mean of the vector
mean_x <- mean_vector(x)

# Print the mean of the vector
print(mean_x)

paste(rep("*", 200), collapse = "")

#Task 11:Create a matrix with the combination of multiple variables

x <- c(1, 2, 3)
y <- c("a", "b", "c")
z <- c(10, 20, 30)

# Create a matrix with the combination of the three variables
matrix_with_combination <- expand.grid(x, y, z)

# Print the matrix
print(matrix_with_combination)
```

```
paste(rep("*", 200), collapse = "")

#Task 12:Create a data frame with multiple variables and check the class of each variable in
the data frame and summarize it

df <- data.frame(
  experience = c(1, 2, 3, 4, 5),
  name = c("Amit", "Akriti", "Yashu", "Manasvi", "Tanmay"),
  state = c("Maharashtra", "Uttarakhand", "Karnataka", "Tamil Nadu", "Delhi"),
  salary = c(100000, 200000, 300000, 400000, 500000),
  Gender = c("Male","Female","Female","Female","Male")
)

## Check the class of each variable in the data frame
str(df)

## Summarize the data frame
summary(df)

##check for factor in Gender Variable
factor(df$Gender)

paste(rep("*", 200), collapse = "")

# Task 13:Import new data (Employee details.csv) into the R environment and assign a name to it

##Load the dataset
employee_details <- read.csv('~/Module_2_Assignment/Employee_detail.csv')

# Assign a name to the data frame
df <- employee_details

# Check the class of the data frame
class(df)

# Summarize the data frame
summary(df)

paste(rep("*", 200), collapse = "")
```