Week 1 Tasks - Data Science Programming

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Week 1 Tasks

This R Markdown document contains solutions to all Week 1 tasks using the `student_scores.csv` dataset.

Task 1 – Hello World

Write a program that prints: "Welcome to Data Science Programming!"

```
print("Welcome to Data Science Programming!")
```

```
## [1] "Welcome to Data Science Programming!"
```

Task 2 – Simple Math

Calculate and print the result of: - 15 + 23 - 120 / 6
- 5^3 (5 to the power of 3)

```
# Task 2: Simple Math
# Write your code here
print(15 + 23)
```

```
## [1] 38
```

```
print(120/6)
```

```
## [1] 20
```

```
print(5 ** 3)
```

```
## [1] 125
```

Task 3 – Variables and Vectors

Create a vector of 5 numbers: `c(10, 20, 30, 40, 50)`.

Print the vector and the sum of its elements.

```
# Task 3: Variables and Vectors
# Write your code here
nums <- c(10, 20, 30, 40, 50)
print(nums)
```

```
## [1] 10 20 30 40 50
```

```
print(sum(nums))
```

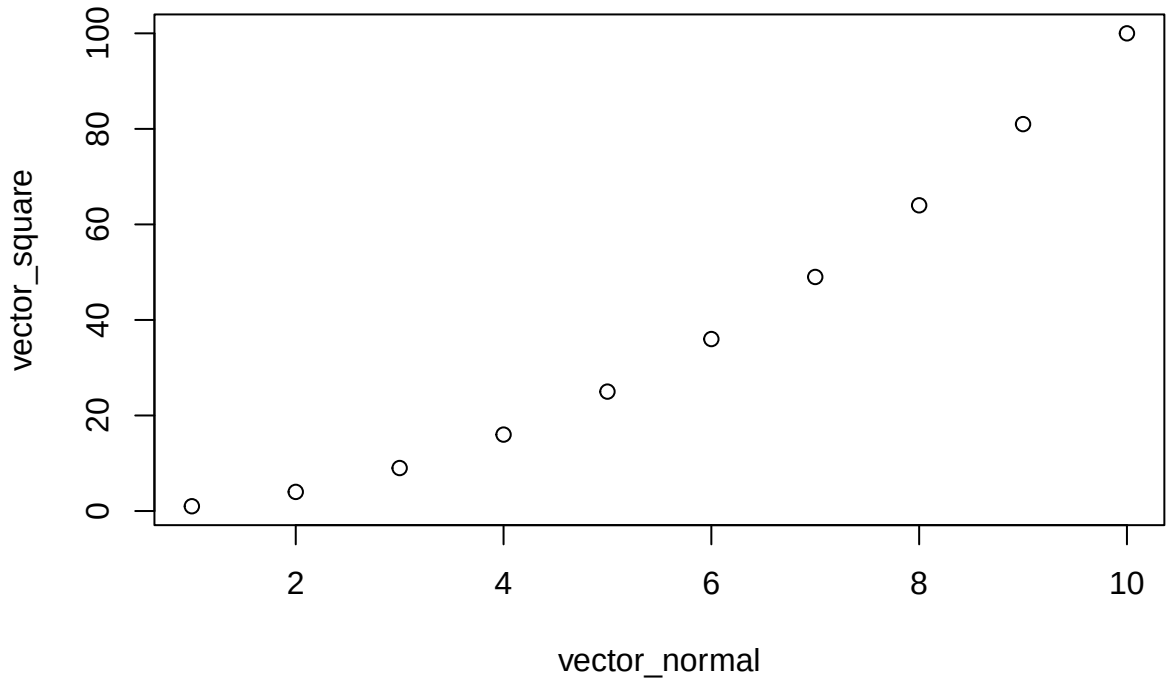
```
## [1] 150
```

Task 4 – Plot Squares

Create a vector of numbers from 1 to 10.

Plot the numbers against their squares using the `plot()` function.

```
# Task 4: Plot Squares
# Write your code here
vector_normal <- c(1, 2, 3, 4, 5, 6, 7, 8, 9, 10)
vector_square <- vector_normal^2
plot(vector_normal, vector_square)
```



Task 5 – Load Dataset

Load `student_scores.csv` into your program.

Display the first 5 rows.

```
# Task 5: Load Dataset
# Write your code here
data <- read.csv('student_scores.csv')
head(data, 5)
```

```
##      Name Score
## 1   Alice    85
## 2     Bob    72
## 3 Charlie    90
## 4   David    65
## 5    Emma    78
```

Task 6 – Summary Statistics

Print the average (mean) of the `Score` column.

Print the minimum and maximum scores.

```
# Task 6: Summary Statistics
# Write your code here
mean_score <- mean(data$Score)

min_score <- min(data$Score)
max_score <- max(data$Score)

print(mean_score)
```

```
## [1] 78
```

```
print(min_score)
```

```
## [1] 55
```

```
print(max_score)
```

```
## [1] 92
```

Task 7 – Filtering Data

Find and print the names of students who scored greater than 80.

```
# Task 7: Filtering Data
# Write your code here
high_scores <- data[data$Score > 80, "Name"]
print(high_scores)
```

```
## [1] "Alice"   "Charlie" "Grace"   "Hannah"  "Julia"
```

Task 8 – Sorting Data

Sort the dataset by `Score` in descending order.

Display the top 3 students.

```
# Task 8: Sorting Data
# Write your code here
sorted_data <- data[order(-data$Score), ] # Sort the score by descending
head(sorted_data, 3)
```

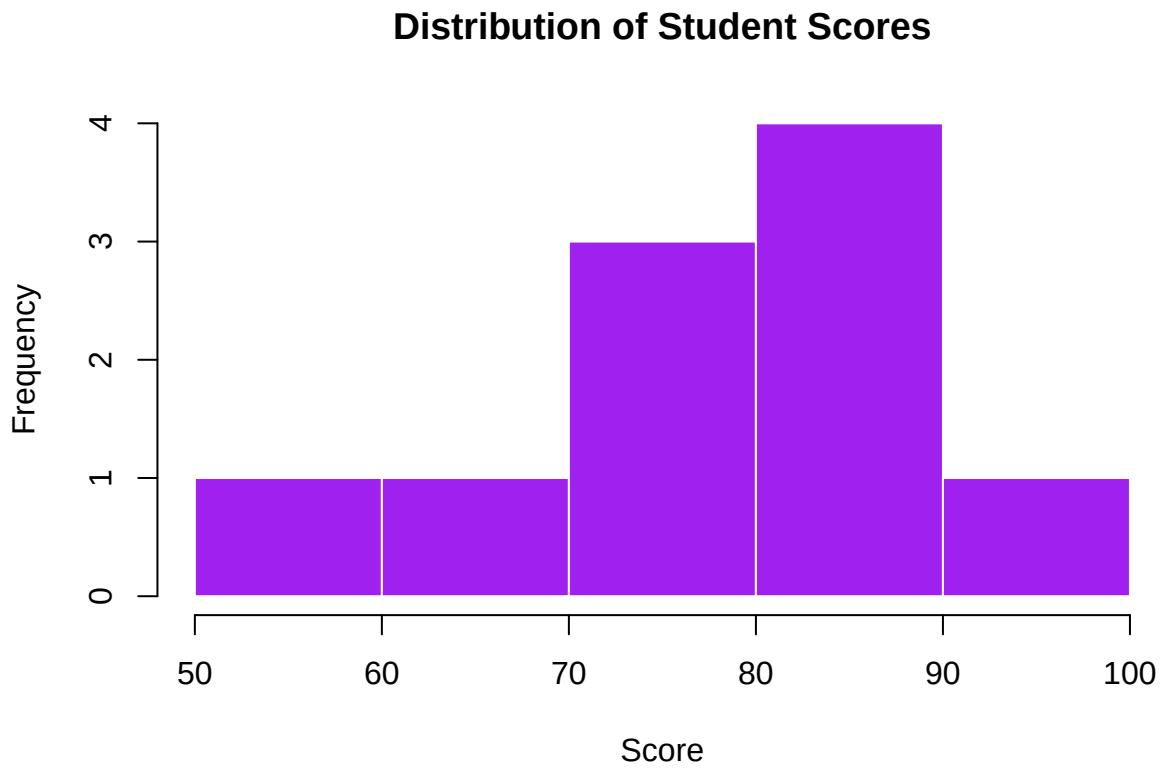
```
##       Name Score
## 7    Grace    92
## 3  Charlie    90
## 10   Julia    88
```

Task 9 – Visualization

Create a histogram of scores.

Add appropriate title and axis labels.

```r
# Task 9: Visualization
# Write your code here
hist(data$Score,
     main = "Distribution of Student Scores",
     xlab = "Score",
     ylab = "Frequency",
     col = "purple",
     border = "white")
```



Submission Notes

- Ensure all code chunks run without errors
- Include appropriate comments in your code
- Make sure plots are properly displayed
- Knit this document to HTML/PDF before submission
- Save and submit this file as `Week1_Tasks.Rmd`

End of Week 1 Tasks