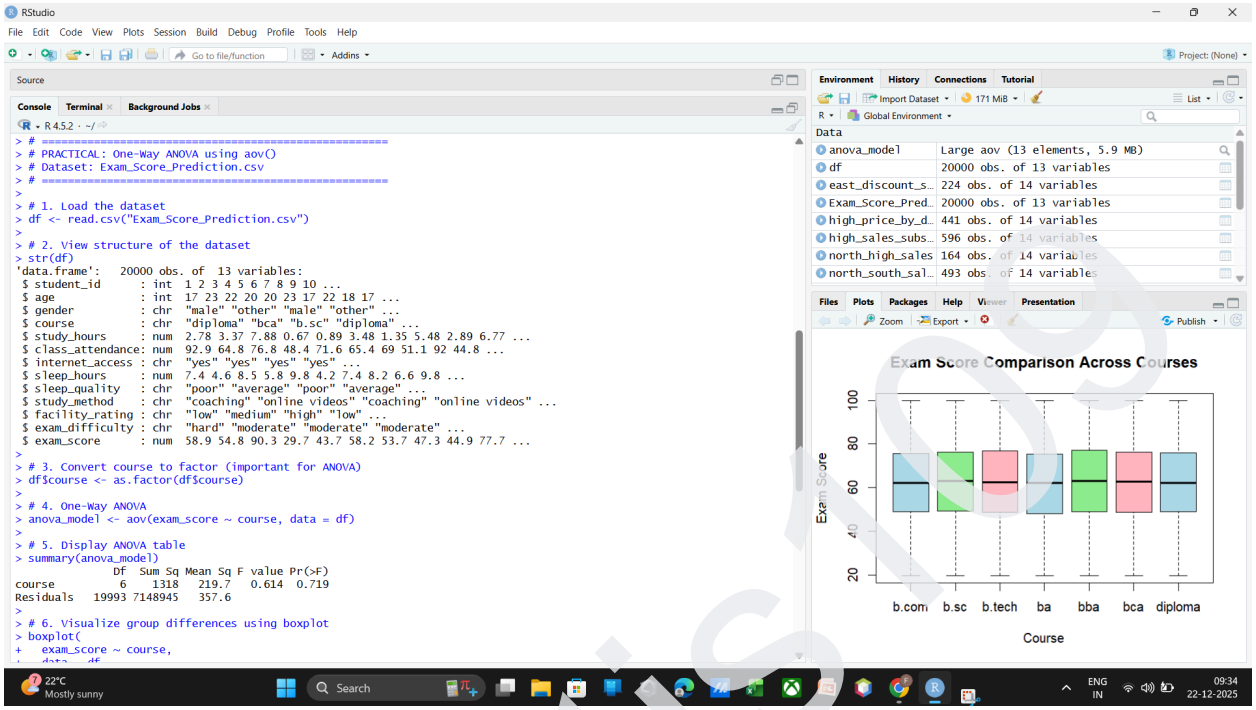
SHETH L.U.J AND SIR M.V COLLEGE
PRACTICAL NO - 7,8,9 MODULE 2
SUBJECT - DATA ANALYSIS

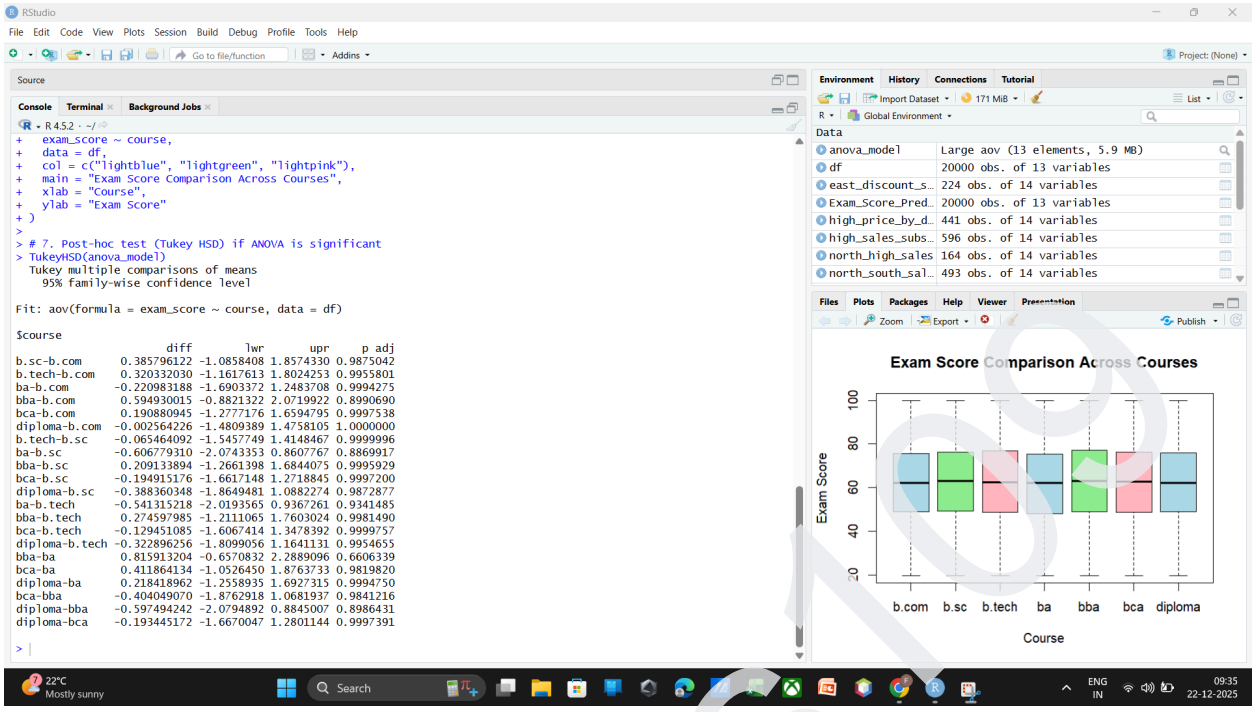
AIM - Performing one-way ANOVA using aov() (R).

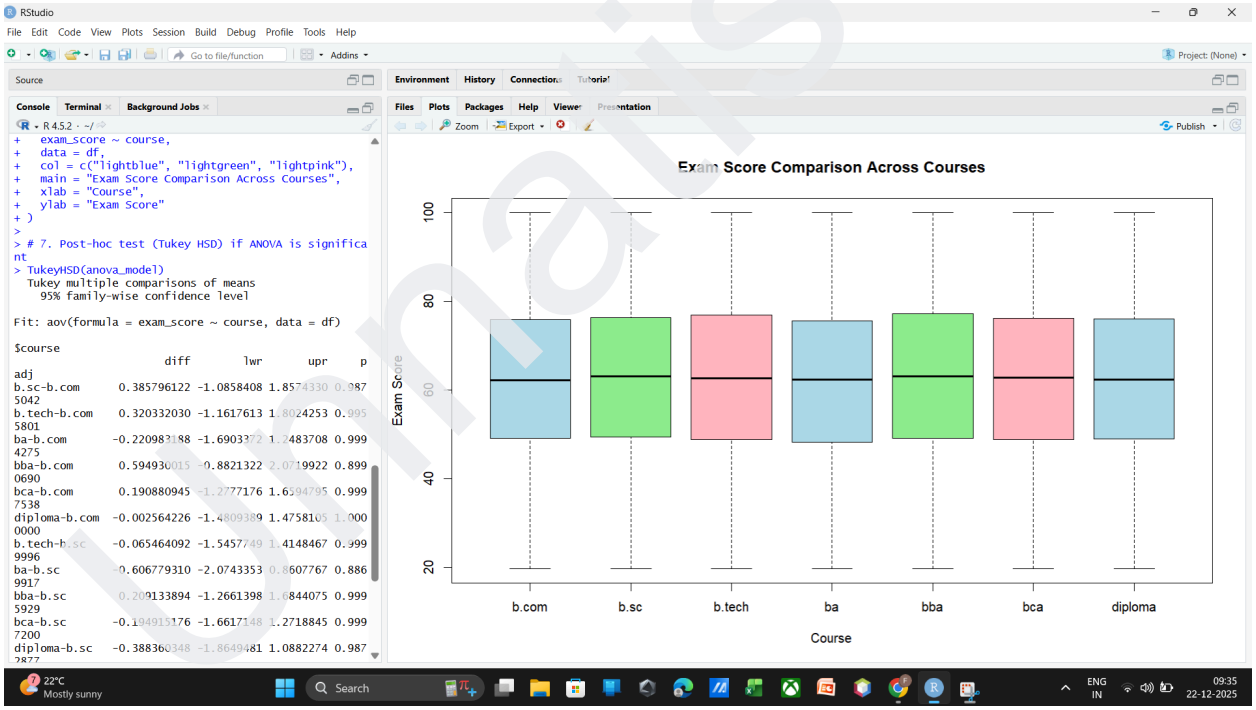
OUTPUT -



NAME - UNNATI RATHOD
ROLL NO - S109

SHETH L.U.J AND SIR M.V COLLEGE
PRACTICAL NO - 7,8,9 MODULE 2
SUBJECT - DATA ANALYSIS

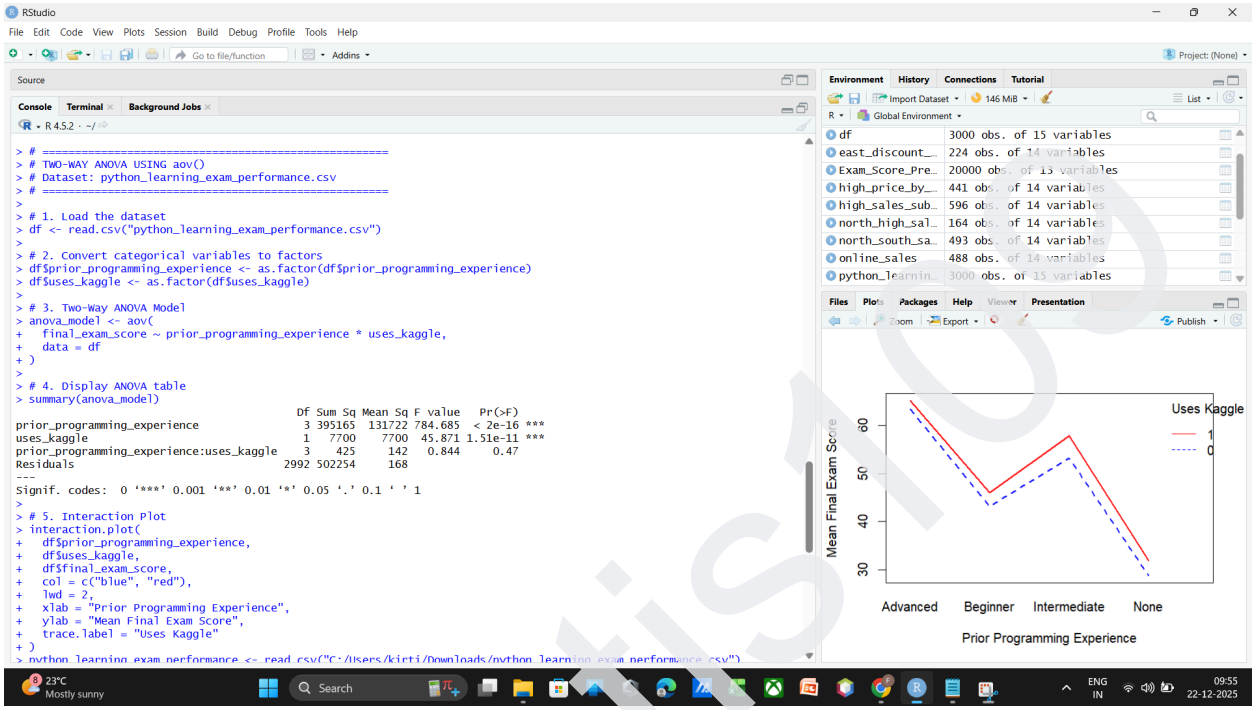


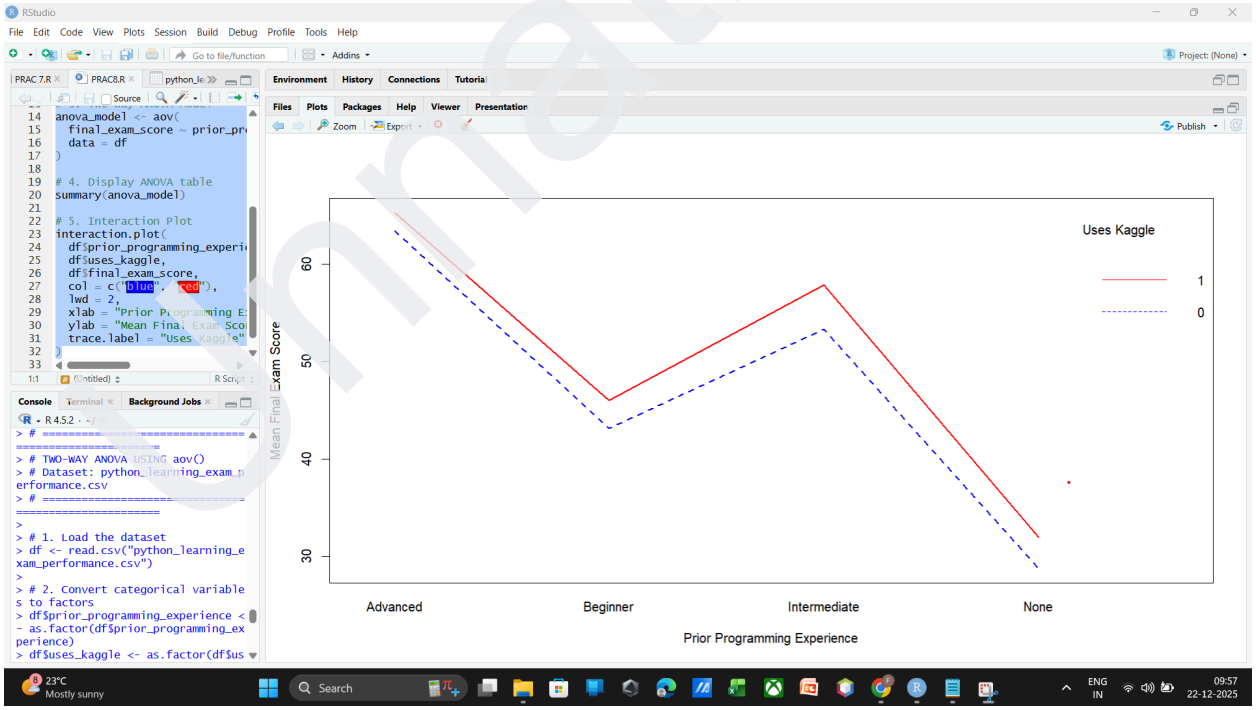


NAME - UNNATI RATHOD
ROLL NO - S109

SHETH L.U.J AND SIR M.V COLLEGE
PRACTICAL NO - 7,8,9 MODULE 2
SUBJECT - DATA ANALYSIS

Aim- 8 Performing two-way ANOVA using aov() (R).
OUTPUT -





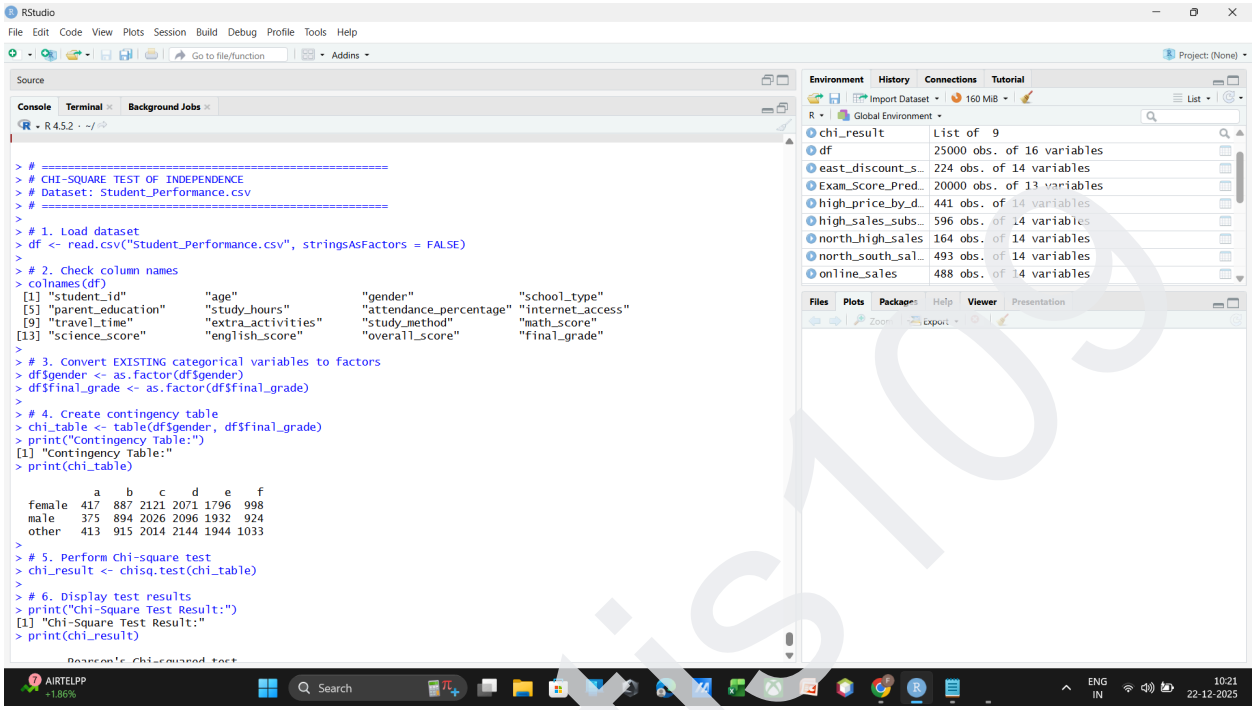
NAME - UNNATI RATHOD
ROLL NO - S109

SHETH L.U.J AND SIR M.V COLLEGE
PRACTICAL NO - 7,8,9 MODULE 2
SUBJECT - DATA ANALYSIS

AIM - 9

Conducting Chi-square tests using chisq.test() (R)'

OUTPUT -



```
> # ================================================
> # CHI-SQUARE TEST OF INDEPENDENCE
> # Dataset: Student_Performance.csv
> # ================================================
>
> # 1. Load dataset
> df <- read.csv("Student_Performance.csv", stringsAsFactors = FALSE)
>
> # 2. Check column names
> colnames(df)
 [1] "student_id"          "age"                 "gender"              "school_type"
 [5] "parent_education"    "study_hours"         "attendance_percentage" "internet_access"
 [9] "travel_time"         "extra_activities"    "study_method"        "math_score"
[13] "science_score"       "english_score"       "overall_score"       "final_grade"
>
> # 3. Convert EXISTING categorical variables to factors
> df$gender <- as.factor(df$gender)
> df$final_grade <- as.factor(df$final_grade)
>
> # 4. Create contingency table
> chi_table <- table(df$gender, df$final_grade)
> print("Contingency Table:")
[1] "Contingency Table:"
> print(chi_table)

          a    b    c    d    e    f
  female  417  887 2121 2071 1796  998
  male    375  894 2026 2096 1932  924
  other   413  915 2014 2144 1944 1033
>
> # 5. Perform Chi-square test
> chi_result <- chisq.test(chi_table)
>
> # 6. Display test results
> print("Chi-Square Test Result:")
[1] "Chi-Square Test Result:"
> print(chi_result)

        Pearson's Chi-squared test

data:  chi_table
X-squared = 18.146, df = 10, p-value = 0.05254

>
> # 7. Display expected frequencies
> print("Expected Frequencies:")
[1] "Expected Frequencies:"
> print(chi_result$expected)

               a        b        c        d        e        f
female 399.5780 893.9936 2042.988 2092.728 1880.835  979.8780
male   397.5054 889.3565 2032.391 2081.873 1871.079  974.7954
other  407.9166 912.6499 2085.622 2136.400 1920.085 1000.3266
>
```

NAME - UNNATI RATHOD
ROLL NO - S109