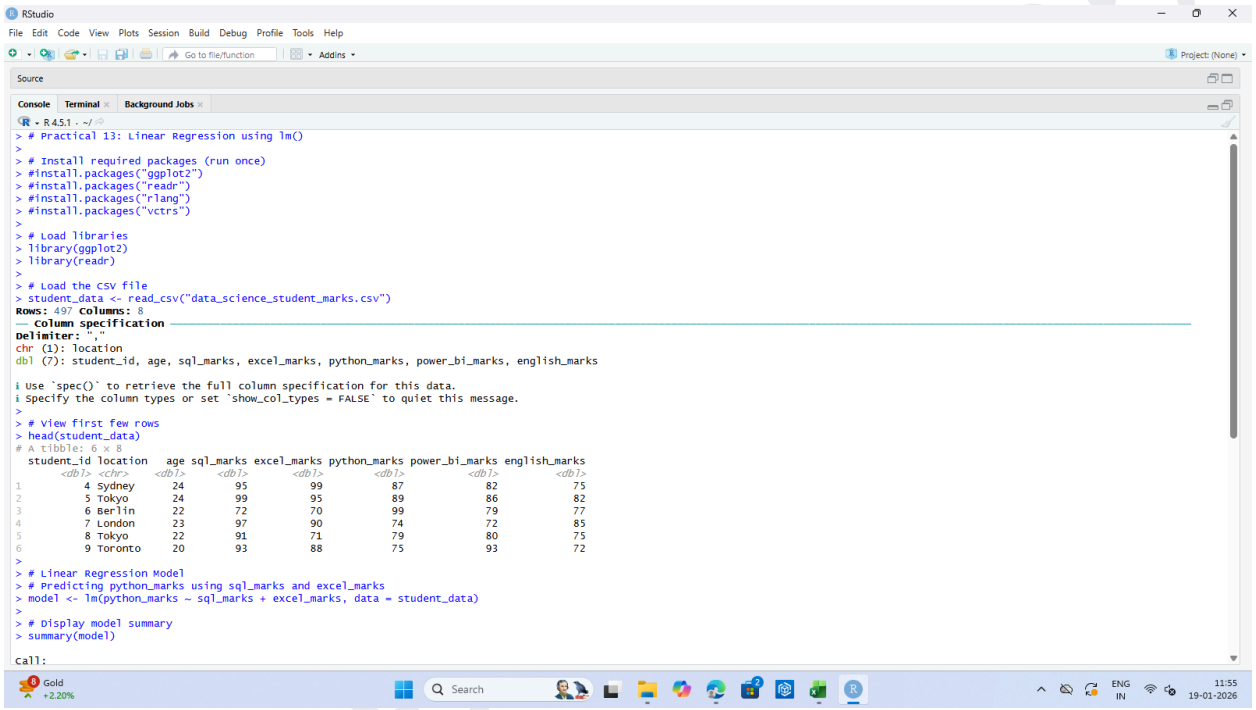
SHETH L.U.J. AND SIR M.V. COLLEGE OF ARTS SCIENCE AND COMMERCE

SUBJECT : R Programming

Practical No 13 Module II

Aim : Performing linear regression analysis using lm() (R).

Output :



NAME : SHUBHAM SANJAY KARAPE

ROLL NO : S085

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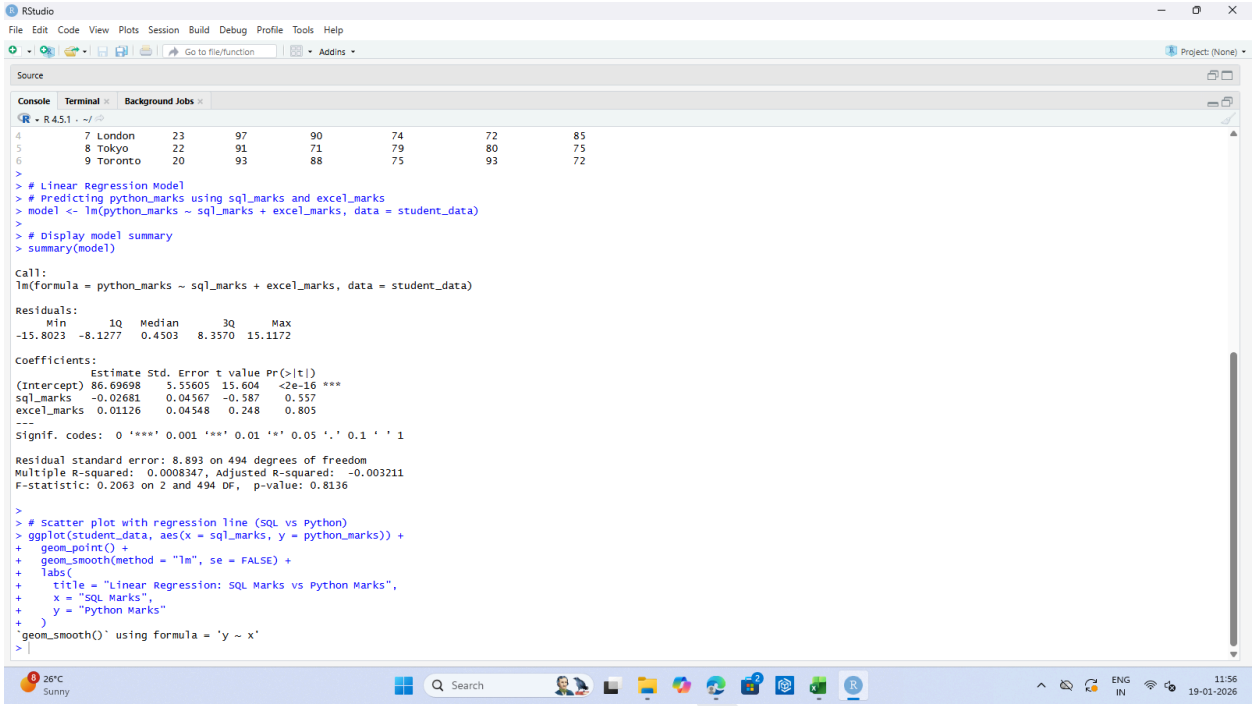
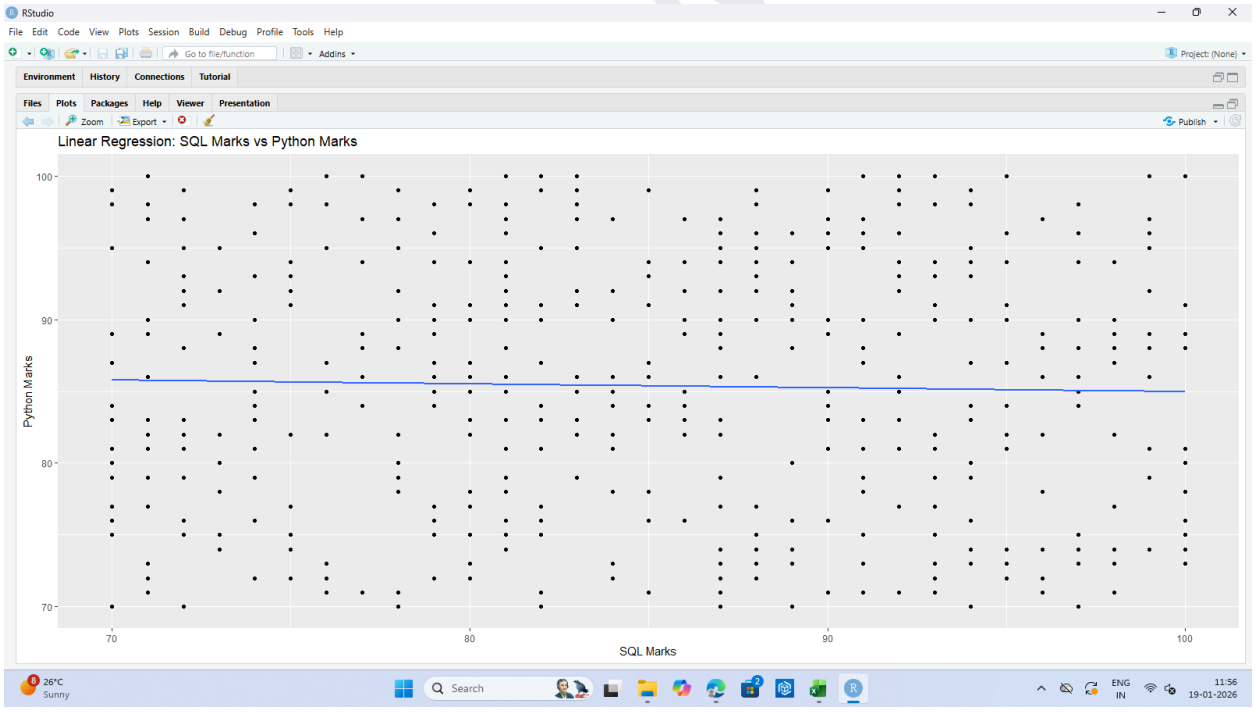


```
4          7 London      23        97          90          74          72          85
5          8 Tokyo       22        91          71          79          80          75
6          9 Toronto     20        93          88          75          93          72
>
> # Linear Regression Model
> # Predicting python_marks using sql_marks and excel_marks
> model <- lm(python_marks ~ sql_marks + excel_marks, data = student_data)
>
> # Display model summary
> summary(model)

Call:
lm(formula = python_marks ~ sql_marks + excel_marks, data = student_data)

Residuals:
     Min       1Q   Median       3Q      Max
-15.8023  -8.1277   0.4503   8.3570  15.1172

Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept) 86.69698    5.55605  15.604   <2e-16 ***
sql_marks   -0.02681    0.04567  -0.587    0.557
excel_marks  0.01126    0.04548   0.248    0.805
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 8.893 on 494 degrees of freedom
Multiple R-squared:  0.0008347, Adjusted R-squared:  -0.003211
F-statistic: 0.2063 on 2 and 494 DF,  p-value: 0.8136

>
> # Scatter plot with regression line (SQL vs Python)
> ggplot(student_data, aes(x = sql_marks, y = python_marks)) +
+   geom_point() +
+   geom_smooth(method = "lm", se = FALSE) +
+   labs(
+     title = "Linear Regression: SQL Marks vs Python Marks",
+     x = "SQL Marks",
+     y = "Python Marks"
+   )
`geom_smooth()` using formula = 'y ~ x'
>
```



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