Week 7 Assessment

Due on 2021-03-10, 22:50 IST.

As per our records you have not submitted this assignment.

1) Given below are the four equations in the OLS context, select the correct ones (summations are taken over sample data only).

\[
\sum_{i=1}^{n} \hat{y}_i = n \cdot \hat{\beta}_0 \\
\sum_{i=1}^{n} y_i = n \cdot \overline{y} \\
\sum_{i=1}^{n} x_i y_i = n \cdot \hat{\beta}_1 \\
\sum_{i=1}^{n} x_i = n \cdot \overline{x}
\]

No, the answer is incorrect.

Score: 0

Accepted Answers:

\[
\sum_{i=1}^{n} \hat{y}_i = n \cdot \hat{\beta}_0 \\
\sum_{i=1}^{n} y_i = n \cdot \overline{y} \\
\sum_{i=1}^{n} x_i y_i = n \cdot \hat{\beta}_1
\]

2) Consider the following equations concerning OLS and select the ones that are correct.

\[
\hat{y}_i = \hat{\beta}_0 + \hat{\beta}_1 x_i + \epsilon_i \\
\hat{y}_i = \hat{\beta}_0 + \hat{\beta}_1 x_i \\
\hat{\beta}_1 = \frac{\sum_{i=1}^{n} (x_i - \overline{x})(y_i - \overline{y})}{\sum_{i=1}^{n} (x_i - \overline{x})^2}
\]

No, the answer is incorrect.

Score: 0

Accepted Answers:

\[
\hat{y}_i = \hat{\beta}_0 + \hat{\beta}_1 x_i \\
\hat{\beta}_1 = \frac{\sum_{i=1}^{n} (x_i - \overline{x})(y_i - \overline{y})}{\sum_{i=1}^{n} (x_i - \overline{x})^2}
\]

3) The OLS can be applied to the following model.

\[
\hat{y}_i = \hat{\beta}_0 + \hat{\beta}_1 x_i + \hat{\beta}_2 x_i^2 + \epsilon_i
\]

TRUE

FALSE

No, the answer is incorrect.

Score: 0

Accepted Answers:

FALSE

4) Questions 4, 5 and 6 are based on the following data on the weekly family consumption expenditure (Y) and weekly family income (X).

<table>
<thead>
<tr>
<th>Y</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>65</td>
<td>100</td>
</tr>
<tr>
<td>90</td>
<td>120</td>
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<tr>
<td>95</td>
<td>140</td>
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<td>110</td>
<td>160</td>
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<td>115</td>
<td>180</td>
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<td>120</td>
<td>200</td>
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<tr>
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<td>220</td>
</tr>
<tr>
<td>155</td>
<td>240</td>
</tr>
<tr>
<td>150</td>
<td>260</td>
</tr>
</tbody>
</table>

The regression model is given by

\[
\hat{y}_i = \hat{\beta}_0 + \hat{\beta}_1 x_i + \epsilon_i
\]

Note: The answers must be accurate. E.g. If the answer is 5.6792 then you need to write 5.679 only if writing up to three decimal places without rounding.

Now answer the following questions:

The value of \( \hat{\beta}_0 \) is 7 (upto three decimal places without rounding).

No, the answer is incorrect.

Score: 0

Accepted Answers:

(\text{Type: Numerical} 0.869)

1 point

The value of \( \hat{\beta}_1 \) is 7 (upto two decimal places without rounding).

No, the answer is incorrect.

Score: 0

Accepted Answers:

(\text{Type: Numerical} 24.47)

1 point

The value of \( R^2 \) is 7 (upto three decimal places without rounding).

No, the answer is incorrect.

Score: 0

Accepted Answers:

(\text{Type: Numerical} 0.961)