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<p class="project-sub-description">
  Machine Learning Linear Regression Project in Python to build a simple linear
regression model and master the fundamentals of regression for beginners.
</p>

<p class="what-will-you-learn">
  What will you learn?
</p>

<div class="what-will-you-learn-block">
  <ul class="list-disc what-will-you-learn-list">

    <li class="set-orange what-will-you-learn-list-item" style="display: list-
item;">
      <span class="text-black">What is Regression?</span>
    </li>

    <li class="set-orange what-will-you-learn-list-item" style="display: list-
item;">
      <span class="text-black">Types of Regression</span>
    </li>

    <li class="set-orange what-will-you-learn-list-item" style="display: list-
item;">
      <span class="text-black">What is Mean, Variance, and Standard Deviation?</
span>
    </li>

    <li class="set-orange what-will-you-learn-list-item" style="display: list-
item;">
      <span class="text-black">Correlation and Causation</span>
    </li>

    <li class="set-orange what-will-you-learn-list-item" style="display: list-
item;">
      <span class="text-black">What are Observational and Experimental data?</
span>
    </li>

    <li class="set-orange what-will-you-learn-list-item" style="display: list-
item;">
      <span class="text-black">Formula for Regression</span>
    </li>
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    <li class="set-orange what-will-you-learn-list-item" style="display: list-
item;">
      <span class="text-black">Building a Simple Linear Regression model</span>
    </li>

    <li class="set-orange what-will-you-learn-list-item" style="display: list-
item;">
      <span class="text-black">Understanding Interpolation and Extrapolation</
span>
    </li>

    <li class="set-orange what-will-you-learn-list-item" style="display: list-
item;">
      <span class="text-black">What are Lurking Variables?</span>
    </li>

    <li class="set-orange what-will-you-learn-list-item" style="display: list-
item;">
      <span class="text-black">Derivation for Least Square Estimates</span>
    </li>

    <li class="set-orange what-will-you-learn-list-item" style="display: list-
item;">
      <span class="text-black">The Gauss Markov Theorem</span>
    </li>

    <li class="set-orange what-will-you-learn-list-item" style="display: list-
item;">
      <span class="text-black">Point estimators of Regression</span>
    </li>

    <li class="set-orange what-will-you-learn-list-item" style="display: list-
item;">
      <span class="text-black">Sampling distributions of Regression
coefficients</span>
    </li>

    <li class="set-orange what-will-you-learn-list-item" style="display: list-
item;">
      <span class="text-black">F- Statistics</span>
    </li>

    <li class="set-orange what-will-you-learn-list-item" style="display: list-
item;">
      <span class="text-black">Anova Partitioning</span>
    </li>
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    <li class="set-orange what-will-you-learn-list-item" style="display: list-
item;">
      <span class="text-black">Coefficient of Determination(R-Squared)</span>
    </li>

    <li class="set-orange what-will-you-learn-list-item" style="display: list-
item;">
      <span class="text-black">Diagnostic and Remedial Measures</span>
    </li>

    <li class="set-orange what-will-you-learn-list-item list-style-none view-
more-items" style="display: none;">
      <span class="text-blue f-5 cursor-pointer">View more details</span>
    </li>

  </ul>
</div>

<p class="project-block-description">Project Description</p>

<div class="project-block-description-detail">
  <p><span style="font-family: arial, helvetica, sans-serif;"><strong>Overview</
strong></span></p>

  <p><span style="font-family: arial, helvetica, sans-serif;">Regression is one
of the foundational techniques in Machine Learning. Being one of the most well-
understood algorithms, beginners always struggle to understand some fundamental
terminology related to regression. In this series of projects, we try to give
you basic ideas of underlying concepts with the help of practical examples. If
you are starting your career or want to brush up on your knowledge of
regression, this course is made up for you. This project begins by introducing
some simple real-life examples for regression. From a brief introduction to
most of the concepts used in regression to hands-on experience, this project
will give you enough understanding to apply those in real-world problems. With
the help of the background developed, you will code your regression model in
python.</span></p>

  <p>&amp;nbsp;</p>
  <p>&amp;nbsp;</p>

  <p><strong><span style="font-family: arial, helvetica, sans-serif;">Aim</
span></strong></p>
  <p><span style="font-family: arial, helvetica, sans-serif;">To give a gentle
introduction to the fundamentals of regression and build a simple linear
regression model in python.</span></p>

  <p>&amp;nbsp;</p>
  <p>&amp;nbsp;</p>
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  <p><strong><span style="font-family: arial, helvetica, sans-serif;">Data
Description</span></strong></p>
  <p><span style="font-family: arial, helvetica, sans-serif;">The dataset used
is the soccer player dataset. It has information about various players from
different clubs, and it provides data over ten features with score as the
target variable.</span></p>

  <p> </p>
  <p> </p>

  <p><strong><span style="font-family: arial, helvetica, sans-serif;">Tech
Stack</span></strong></p>
  <ul>
    <li><p><span style="font-family: arial, helvetica, sans-serif;">Language:
Python</span></p></li>
    <li><p><span style="font-family: arial, helvetica, sans-
serif;">Libraries:  pandas, statsmodel, seaborn, matplotlib, sklearn,
scipy</span></p></li>
  </ul>

  <p> </p>
  <p> </p>

  <p><strong><span style="font-family: arial, helvetica, sans-serif;">Approach</
span></strong></p>
  <p><span style="font-family: arial, helvetica, sans-serif;">This project
starts with a real-life example for regression analysis, with an introduction
to simple and multiple linear regression. Building the statistical foundation
for the regression, it gives you a brief idea of the formula of regression.
With this background, the first regression model in python is built. Going
through the interpolation and extrapolation also explains errors in regression
and Lurking variables. The point estimators of mean and variance and
distributions of underlying parameters are also discussed. The coefficient of
determination is also known, and R squared is briefly explained. The project
ends with diagnostics and remedial measures for regression with a practical
explanation.</span></p>

  <div id="template-keyword"></div>
  <div id="template-paragraph"></div>
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