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        "# IPL 2025 – Exploratory Data Analysis (EDA)\n",
        "***Author:** Shaik Anas\n\n",
        "This notebook performs an end-to-end EDA of IPL 2025 using batting and bowling datasets."
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        "import pandas as pd\n",
        "import matplotlib.pyplot as plt\n",
        "import seaborn as sns\n",
        "sns.set(style='whitegrid')\n",
        "plt.rcParams['figure.figsize'] = (10,6)"
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        "### Step 2: Load Datasets"
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        "batters = pd.read_csv('IPL2025Batters.csv')\n",
        "bowlers = pd.read_csv('IPL2025Bowlers.csv')\n",
        "batters.head(), bowlers.head()"
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    "## Question 1: All-Rounders - Batting Strike Rate vs Bowling Economy"
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    "all_rounders = pd.merge(batters, bowlers, on='Player', how='inner')\n",
    "all_rounders =\n",
    "all_rounders[['Player', 'Runs', 'BallsFaced', 'StrikeRate', 'Wickets', 'Overs', 'EconomyRate']]\n",
    "plt.figure(figsize=(10,6))\n",
    "sns.scatterplot(data=all_rounders, x='StrikeRate', y='EconomyRate', hue='Player')\n",
    "plt.title('All-Rounders: Strike Rate vs Economy Rate')\n",
    "plt.xlabel('Batting Strike Rate')\n",
    "plt.ylabel('Bowling Economy Rate')\n",
    "plt.legend([],[], frameon=False)\n",
    "plt.savefig('all_rounders_plot.png')\n",
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    "team_runs = batters.groupby('Team')['Runs'].sum().sort_values(ascending=False)\n",
    "team_runs.plot(kind='bar', color='skyblue')\n",
    "plt.title('Team Total Runs - IPL 2025')\n",
    "plt.xlabel('Team')\n",
    "plt.ylabel('Total Runs')\n",
    "plt.xticks(rotation=45)\n",
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        "### Question 3: Team Total Wickets"
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        "team_wickets = bowlers.groupby('Team')['Wickets'].sum().sort_values(ascending=False)\n",
        "team_wickets.plot(kind='bar', color='salmon')\n",
        "plt.title('Team Total Wickets - IPL 2025')\n",
        "plt.xlabel('Team')\n",
        "plt.ylabel('Total Wickets')\n",
        "plt.xticks(rotation=45)\n",
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        "all_rounders['AllRounderScore'] = all_rounders['StrikeRate'] /
all_rounders['EconomyRate']\n",
        "top10_allrounders = all_rounders.sort_values(by='AllRounderScore',
ascending=False).head(10)\n",
        "sns.scatterplot(data=top10_allrounders, x='StrikeRate', y='EconomyRate', hue='Player',
s=100)\n",
        "plt.title('Top 10 All-Rounders: Strike Rate vs Economy Rate')\n",
        "plt.xlabel('Batting Strike Rate')\n",

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    "plt.ylabel('Bowling Economy Rate')\n",
    "plt.legend(loc='upper right')\n",
    "plt.savefig('top10_allrounders_plot.png')\n",
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        "## Question 5: Correlation Between Team Runs and Wickets"
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        "team_stats = pd.DataFrame({\n",
        "    'TotalRuns': batters.groupby('Team')['Runs'].sum(),\n",
        "    'TotalWickets': bowlers.groupby('Team')['Wickets'].sum(),\n",
        "})\n",
        "sns.scatterplot(data=team_stats, x='TotalRuns', y='TotalWickets', hue=team_stats.index,\n",
        "s=100)\n",
        "plt.title('Team Runs vs Wickets')\n",
        "plt.xlabel('Total Runs')\n",
        "plt.ylabel('Total Wickets')\n",
        "plt.legend([],[], frameon=False)\n",
        "plt.savefig('team_correlation_plot.png')\n",
        "plt.show()\n",
        "sns.heatmap(team_stats.corr(), annot=True, cmap='coolwarm')\n",
        "plt.title('Correlation: Total Runs vs Total Wickets')\n",
        "plt.savefig('team_correlation_heatmap.png')\n",
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