**Python in Excel: Quick Wins Reference Guide**

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| 1. Sample random rows | df.sample() # Default  df.sample(20) # Sample 20 rows |
| 1. Number of missing values in each column | df.isna().sum() # Count missing per column  (df.isna().sum() / len(df))\  .sort\_values(ascending=False) # % missing per column |
| 1. Descriptive statistics | df.describe() # Default  df.describe(percentiles=[.10, .50, .90]) # Custom percentiles |
| 1. Correlation matrix | numeric\_corr = df.select\_dtypes(include="number").corr() # Correlate all numeric variables  sns.heatmap(numeric\_corr, annot=True) # Visualize correlations |
| 1. Frequency tables | df["col\_1"].value\_counts() # Frequency counts  pd.crosstab(df["col\_1"], df["col\_2"],  normalize="all", margins=True) # Two-way proportion |
| 1. Resampling | df\_ts = df.set\_index("date") # Set datetime index  df\_ts.resample("M").sum().head() # Monthly totals  (df\_ts.resample("H").ffill() / 24).head(72) # Hourly forward-fill then scale |
| 1. Index number by group | df["group\_id"] = df.groupby("group\_col").cumcount() + 1 # 1-based counter |
| 1. Leading and lagging variables | df["lag\_1"] = df["value"].shift(1) # Previous value  df["lead\_1"] = df["value"].shift(-1) # Next value  df["pct\_change\_%"] = df["value"].pct\_change() \* 100 # % change |
| 1. Rolling and cumulative aggregations | df["rolling\_mean\_7"] = df["value"].rolling(7).mean() # 7-period mean  df["cum\_sum"] = df["value"].cumsum() # Running total  df["cum\_mean"] = df["value"].expanding().mean() # Running average  df["rolling\_mean\_7"] = df["value"].rolling(7, min\_periods=1).mean() # Rolling w/ min |
| 1. Conditionally format plots | sns.scatterplot(data=df, x="col\_1", y="col\_2",  hue="group\_col", alpha=.7) # Scatter w/ hue  sns.barplot(data=df\_mean, x="cat\_col", y="metric",  palette="Blues\_r") # Bar chart with nonscaled palette |
| 1. Pairplot | sns.pairplot(df) # Quick overview of all pair-wise relationships  g = sns.pairplot(df, hue="group\_col", diag\_kind="kde", markers=["o", "s", "D"]) # Pairplot with hue, KDE diagonals, and custom markers    g.fig.suptitle("Pairplot of Dataset by Group", y=1.02) # Add title |
| 1. Jitterplot | sns.stripplot(data=df, x="cat\_col\_1", y="metric") # Default  sns.stripplot(data=df, x="cat\_col\_1", y="metric",  hue="cat\_col\_2", jitter=.2) # Custom jitter and hue |
| 1. Pairplot | g = sns.FacetGrid(data=df, col="facet\_col") # Column facets  g.map(sns.scatterplot, "col\_1", "col\_2") # Map scatter  g = sns.FacetGrid(data=df, col="facet\_col",  row="row\_col", height=3) # Row + col facets  g.map(sns.boxplot, "col\_1") # Map boxplot  g.set\_titles(col\_template="{col\_name}",  row\_template="{row\_name}") # Custom titles |
| 1. Jointplot | sns.jointplot(data=df, x="col\_x", y="col\_y") # Default scatter + hist  sns.jointplot(data=df, x="col\_x", y="col\_y",  hue="group\_col") # Add hue by category |
| 1. Bubbleplot | sns.scatterplot(data=df, x="col\_1", y="metric", hue="group\_col", size="size\_col", alpha=.6) # Bubble scatter  sns.regplot(data=df, x="col\_1", y="metric",  scatter=False, color="black") # Trend line |