How to choose the appropriate test?

Do you want to find differences?

- No → **Check if data is normally distributed?**
  - Yes → **SHAPIRO - WILK TEST**
  - No → **Check if variables corellate?**
    - No → **Can't help you.**
    - Yes → **Is the sample size large?**
      - Yes → **Are the two datasets normally distributed?**
        - Don't know → SHAPIRO - WILK TEST
        - No → SPEARMAN CORRELATION
        - Yes → PEARSON CORRELATION
      - No → SPEARMAN CORRELATION

- Yes → **Differences in VARIANCE?**
  - Yes → BARTLETT TEST
  - No → **Differences in PROPORTIONS?**
    - Yes → CHI-SQUARED TEST
    - No → **Differences in VALUES?**
      - Yes → **Between 3 or more groups?**
        - Yes → **Large sample sizes?**
          - Yes → **Normally distributed?**
            - Don't know → SHAPIRO-WILK TEST
            - Yes → **Similar variances?**
              - No → **Oneway ANOVA** → **Were there differences?**
                - Yes → PAIRWISE T-TEST WITH BONFERRONI CORRECTION WITHOUT ASSUMING EQUAL VARIANCES
              - Don't know → BARTLETT TEST
              - Yes → **Just one grouping variable?**
                - Yes → **ANOVA** → **Were there differences?**
                  - Yes → PAIRWISE T-TEST WITH BONFERRONI
                - No → TWO-WAY ANOVA
            - No → **Just one grouping variable?**
              - Yes → KRUSKAL-WALLIS TEST
              - No → FRIEDMAN TEST
              - → **Were there differences?**
                - Yes → PAIRWISE WILCOXON TEST WITH BONEFERRONI CORRECTION
        - No → **Large sample sizes?**
          - Yes → **Normally distributed data?**
            - Don't know → SHAPIRO - WILK TEST
            - No → **Same group in two points in time?**
              - No → WILCOXON TEST
              - Yes → PAIRED WILCOXON TEST
            - Yes → **Same group in two points in time?**
              - No → T-TEST
              - Yes → **PAIRED T-TEST**
          - No → **Same group in two points in time?**