**🚀 AI Copilot Flow Mapping**

**0. Pre-Requisites**

1. **Installation & Licensing**
   * Desktop installer (Windows/Mac) sets up:
     + AI Copilot core engine
     + SPSS-bridge module (automation/scripting hooks)
   * Student or institution enters subscription credentials.
2. **Environment Check**
   * On launch, Copilot verifies:
     + Valid license
     + SPSS (or chosen software) version compatibility
   * If expired/invalid, show “Renew Subscription” prompt.

**1. Launch & Authentication**

1. Student opens SPSS.
2. **Auto-start**: Copilot icon/menu appears in SPSS toolbar.
3. Click “Launch Copilot.”
4. **Login Prompt** (if not already authenticated).
   * Single-sign-on or manual license key entry.
5. Once authenticated, Copilot opens its **embedded chat-bar panel** alongside SPSS.

**2. Research Context Setup**

1. **Welcome & Brief**:

“Welcome to StatCopilot! Let’s get your research context.”

1. **Gather Inputs** (via chat prompts, in order):
   * Project Title
   * Problem Statement
   * Hypotheses
   * Variables (with roles: IV, DV, controls)
   * Methodology (design, sample size)
   * **List of Statistical Tests** (or “Suggest tests” option)
2. **Confirmation**:
   * Copilot summarizes all inputs for approval.
   * Student can edit any field before proceeding.

**3. Mode Selection**

*“Choose how you’d like Copilot to assist today:”*

* **A. Automated Assistant**
* **B. Interactive Visual Guide**

**4A. Automated Assistant Mode**

*For each test in the student’s list:*

1. **Data Cleaning**
   * Copilot runs missing-value checks, outlier detection, recoding as per context.
   * Generates a “Cleaning Report” table.
2. **Descriptive & Assumption Checks**
   * Runs descriptives, normality tests, reliability (if needed).
   * Outputs tables and flags any issues (non-normality, etc.).
3. **Main Statistical Test**
   * Executes test (e.g., regression, ANOVA) via SPSS scripting.
   * Produces result tables identical to manual SPSS output.
4. **Table Formatting**
   * Applies academic styling (fonts, headings) per student’s university guidelines.
5. **Loop**:
   * Moves to next test on the list until all are done.
6. **Progress & Logs**
   * Chat-bar shows live progress (“Running Test 2 of 4…”).
   * Errors (e.g., insufficient data) trigger clarification prompts.

**4B. Interactive Visual Guide Mode**

1. **Copilot overlays pulsing highlights on SPSS menu items/buttons.**
2. **Step-by-Step Prompts in chat:**
   * “Click on Analyze → Descriptive Statistics → Frequencies.”
3. **Live Feedback**
   * If the student mis-clicks, Copilot gently corrects:  
     “Oops—try the ‘Analyze’ menu, not ‘Graphs’.”
4. **Completion Check**
   * Only moves to next step once the current one is correctly executed.
5. **Repeat for all tests and assumption checks.**

**5. Result Interpretation Phase**

1. **After tests, Copilot asks:**

“Which formatting style? (University A / Journal B / Custom…)”

1. **Interpretation Engine**
   * Parses each result table.
   * Generates write-ups (e.g., “The regression model explained 45% of the variance…”).
   * Adapts length, tone, and citation style.
2. **Student Review**
   * Writes appear in chat for review/editing.
   * Once approved, Copilot can **insert** them directly into the SPSS output viewer or export to Word.

**6. Export & Reporting**

1. **One-Click Export**
   * Formatted tables + interpretations → .docx/.pdf.
   * Optionally push into the student’s thesis template.
2. **Project Save**
   * All logs, cleaned data snapshots, and chat history saved in a Copilot project file for future re-runs or audits.
3. **Subscription Reminder**
   * 7 days before expirys, a subtle nudge in chat:  
     “Your subscription renews in 7 days. Would you like to extend now?”

**7. Error Handling & Flexibility**

* At any point, the student can type “Edit context,” “Add test,” or “Switch mode.”
* Copilot gracefully returns to the relevant step without losing prior work.

**8. Future Integration & Exit Strategy**

* **Partner Mode** (post-launch): expose a slim API so IBM/Scite can embed Copilot UI directly in their products, with revenue-share hooks.
* **Acquisition-Ready**: clean modular architecture facilitates licensing or sale to major vendors.