Week 5: Inventory + Data selection

**Background**

Immediately, the in-depth, specific inventories are proprietary, complex, and seem generally inaccessible. Therefore, for this project, it seems reasonable to limit the inventories employed by the chatbot to shorter (<20ish questions) open-source identifiers. I think this actually works well for this stage/iteration of the idea, too: it can serve as a surface level tool to help parse simple cases of mental illness using the screening (i.e. common or obvious diagnoses) and suggest further testing for complex cases (for less common diagnoses that require a more nuanced review), and this framing is further supported by the theme in my literature review that medical processes can be augmented but should not be fully automated. This approach will patients to access these screenings with the benefits of a digital approach explored in the lit. review while supporting medical practitioners by allowing more patient independence in the administration of the screenings.

**Implementation**

My current idea is that the LLM Chatbot, which I have named Olive, will have a semi-structured conversation with a patient during which Olive will administer these screenings while allowing the patient to provide qualitative insight beyond the strict quantitative responses to the inventories.

* Olive will initially prompt the patient to describe the reasons for which they are seeking mental health support. It will be allowed to ask follow-up questions in case anything is unclear or if it deems additional context to be useful.
* Based on the patient’s self-report, Olive will determine which symptoms are most significant and then administer the appropriate screenings based on its initial “guess” as to what the patient may be experiencing. It will prompt the patient to include any additional thoughts based on each screening that can inform the inclusion of future screenings and the overall diagnostic impression.
  + Olive will have access to each diagnostic inventory in the form that it would be administered to a patient, as well as the instructions and context by which each screening should be administered and interpreted.
  + It may be helpful for Olive to consider screening for symptoms that are not immediately flagged from the initial patient statement. For example, depression + anxiety show a significant degree of comorbidity (i.e. experiencing one symptom can exacerbate feelings of the other) that may not be obvious to a patient.
    - Perhaps all patients can do the short forms of the screeners and if they are found to flag positively they can take more comprehensive ones?
* Once Olive has completed the screenings, it will ask the patient to share any closing thoughts before ending the conversation.
* It will then generate a report of the conversation and screenings, not to be shared with the patient but only with the provider, providing the results of each screening administered and an overall conclusion containing possible interpretations of the test results. Olive should be careful not to provide absolute conclusions and frame its findings in a way such that the medical practitioner reading them is minimally biased.

**Inventories**

Olive will begin by administering PHQ-4. Then, based on its results + the self-report from the patient, the following inventories in bold will be administered by Olive to the patient. If a patient scores highly on an inventory, Olive can run another in italics to cross-validate; similarly, a confusing or borderline score or contradictory responses can be met with a second screener to refine insight and investigate masking, underreporting, or comorbidity.

1. Depression
   1. **PHQ-9, Depression**
   2. ~~CES-D, Depression~~
   3. *BDI-II, Severity of Depression*
   4. *QIDS-SR16, Depression*
2. Anxiety & Panic Disorders
   1. **GAD-7, Generalized Anxiety Disorder Screener**
   2. PDSS-SR, Panic Disorder *if panic mentioned/indicated*
   3. *BAI, General anxiety*
   4. SPIN, social anxiety *if social anxiety mentioned*
3. PTSD & Trauma
   1. **PCL-5, PTSD symptoms**
   2. *IES-R, Trauma Response*
   3. ACE-q, Childhood trauma *if mentioned*
4. Substance Use
   1. **AUDIT, alcohol use**
   2. ~~CAGE, alcohol dependence~~
   3. **DAST-10, drug abuse**
   4. *ASSIST, alcohol, smoking and more*
5. ADHD, OCD, ASD
   1. **ASRS, ADHD**
   2. **OCI-R, OCD**
   3. *AQ-10/AQ-50, Autism if mentioned*
6. Other (less common, more complex)
   1. **MDQ, bipolar disorder**
   2. ~~BSI-18, general psychopathology~~
   3. **PQ-B, psychosis risk**
   4. *DES-II, dissociation*
   5. **PID-5-BF, personality pathology**