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# Prolog Project Report « system expert of mental disorders diagnosis »

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## Introduction

Mental health is an essential component of individual well-being, and early identification of mental disorders is crucial to ensure appropriate treatment. Our programming project aims to make a significant contribution to this field by developing an interactive mental health expertise system.Présentation du Projet

### Project Objectives

- The fundamental objectives of our project are:
- • Symptom identification: Allow the user to specify the symptoms observed.
- • Diagnosing illness: Associating symptoms entered with potential mental illness using logical rules.
- • Personalized advice: Provide specific advice based on the diagnosis obtained.
- • Intuitive Interface: Develop a user-friendly interface for easy navigation and understanding..

## Background and Rationale

The context of our project emerges from the growing need to raise awareness and provide accessible tools to address mental health issues. With the increasing prevalence of mental disorders, our project aims to offer an interactive, educational and computerized solution to support individuals in understanding their own symptoms and using relevant advice.

The rationale for our project lies in the potential for positive impact on users' daily lives by providing them with accurate information, promoting a proactive understanding of mental health, and facilitating access to useful advice for the management of different disorders.

# Needs Analysis

**Description of Customer or User Needs:**

• Identification of Symptoms: The user must be able to specify the symptoms he or she observes in himself or in a person he or she cares for.

• Diagnosis of Diseases: our system must be able to associate the symptoms entered with potential mental illnesses using pre-established logical rules.

• Personalized Advice: Provide relevant and personalized advice based on the diagnosis obtained. These tips should be practical and applicable in everyday life.

• Intuitive interface: our program must have a user-friendly interface, allowing easy navigation and a clear understanding of the information presented. Définition des Fonctionnalités Principales :

- • Diagnostic Interface (Symptoms to Diseases):
- • The user can specify the symptoms observed.
- • The system provides a list of potential diseases based on the symptoms entered.
- • Display diagnostic information (patient name, diagnosed disease, associated symptoms).
- • Diagnostic Interface (Diseases to Symptoms):
- • The user can select the symptoms observed.
- • The system provides a list of potential diseases based on the selected symptoms.
- • Display diagnostic information (patient name, diagnosed disease, associated symptoms).
- • Mental Illness Tips:
- • The user can select a specific disease.
- • The system provides specific guidance for managing this disease.
- • Global Interface (Buttons):
- • Provide a central interface with buttons to launch various system features.

# Implementation

## Explanation of Algorithms Used:

• Symptom-Disease Association:
•The facts define symptoms, and the rules make connections between symptoms and diseases. For example, if a patient has symptoms of agitation and excessive concern, the diagnosis could be anxiety.
• User interfaces:
• Two main interfaces are set up: one for symptom-based disease research (interface_maladies) and one for disease-based symptom research (interface_symptomes1).
• Display Diagnostic Information:
• When a diagnosis is obtained, an interface (display_interface_symptoms) is used to display diagnostic information, including patient name, diagnosed disease, and associated symptoms.
• Mental Illness Tips:
• Specific advice is associated with each mental illness, and an interface (create interface_advice_interface) allows the user to select an illness to view the advice.Gestion des Interfaces :
• Using the PCE library makes it easy to create graphical interfaces with buttons, menus, and labels for user-friendly interaction.

# User Interface

**User Interface Description**:

- The application implements several user interfaces to facilitate interaction with the mental health expert system. Here is a description of the two main interfaces: interface_symptomes1 and interface_maladies.
- • Diagnostic Interface (Symptoms to Diseases) - interface_symptomes1:
- • This interface allows the user to select a mental illness from several options such as anxiety, depression, schizophrenia and bipolar disorder.
- • The user can then enter the patient's name and click the "Show Information" button to obtain the symptoms associated with the selected disease.
- • A window opens with the patient's name, diagnosis, and associated symptoms.
- • Diagnostic Interface (Diseases to Symptoms) - interface_maladies:
- • This interface allows the user to select a set of symptoms from several options such as restlessness, sadness, loss of interest, etc.
- • After entering the patient's name and clicking the "Show Information" button, the user obtains the potential diseases associated with the selected symptoms. A window then opens showing the patient's name, diagnosis, and associated symptoms.
- • Boards interfaces - create_interface_Conseil:
- • The user can select a disease for which he wants specific advice. By clicking on the "Show Tips" button, a new window opens displaying tips related to the selected disease.
- • Button Interface - interface_buttons:
- • This is the main interface that groups the buttons to access the various features of the application, including the search for
- • symptoms, counselling, and disease research.

**Explanation of Interface Design Choices:**

Interfaces use items such as text_item to enter the patient's name, menu to select diseases or symptoms, and buttons to trigger actions

.• Diagnostic information is presented in separate windows (DialogSymptoms) for better readability.

• Using the ECP library provides a graphical and interactive approach, improving the user experience.

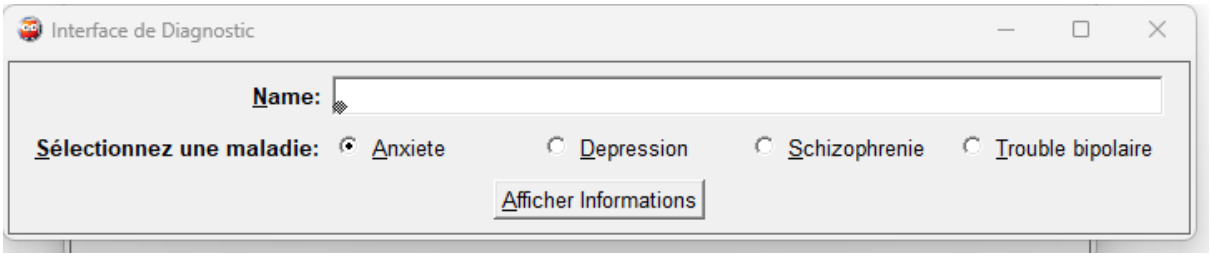
**Screenshots:**

• Diagnostic interface (disease symptoms) - interface_symptomes1:

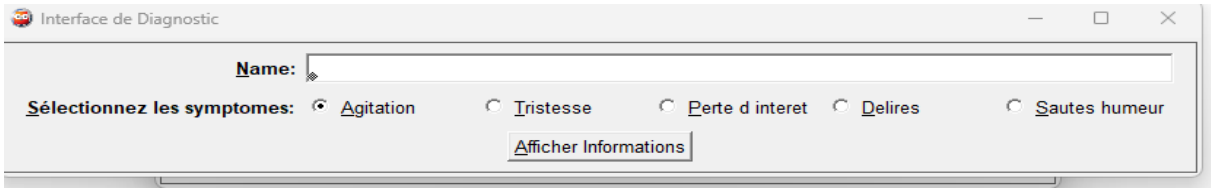
• Choose a disease.

• Enter the patient’s name.

• Display of associated symptoms.



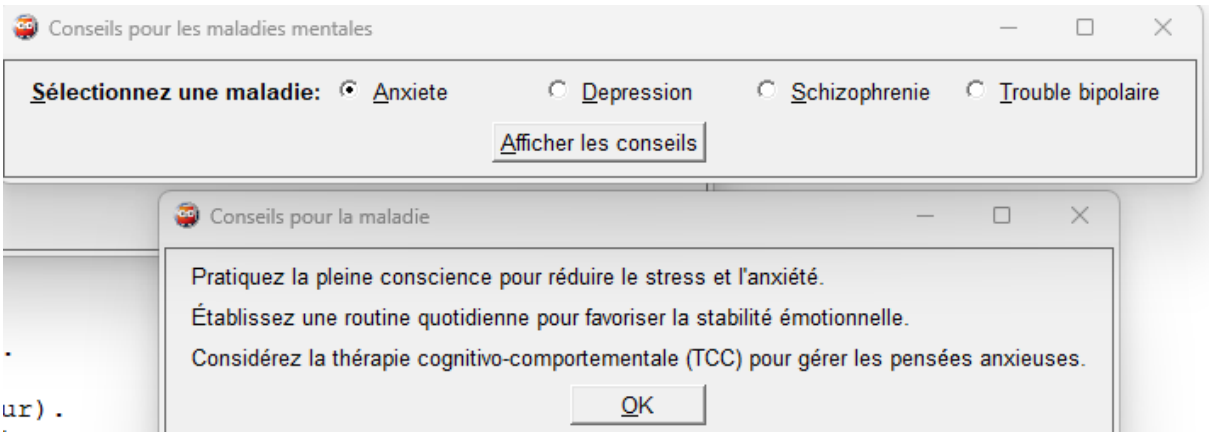

- • Diagnostic Interface (Diseases to Symptoms) - interface_maladies:
- • Selection of symptoms.
- • Enter the patient’s name.
- • Display of potential diseases.




• Advice interface - create_interface_Conseil:

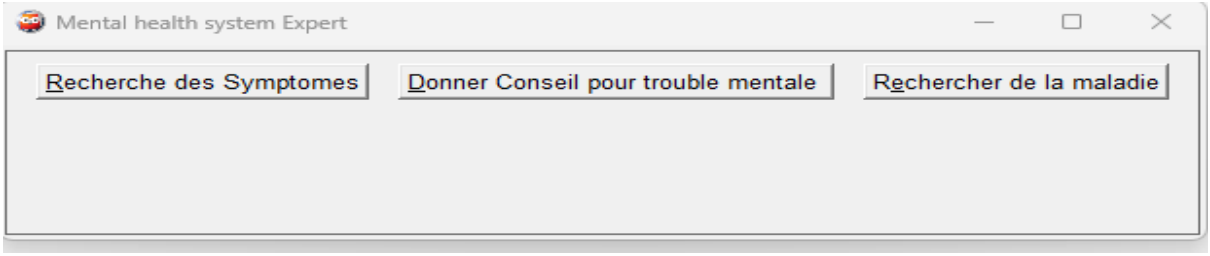
• Selecting a disease.

• Display of related tips.




• Button Interface - interface_buttons:

• Buttons to access different features.



# Test

**Description of Tests Performed:**

• Diagnostic Interface Test (Symptoms to Disease) - interface_symptomes1:

• Step 1: Selecting the disease "anxiety".

• Step 2: Enter Patient Name.

• Step 3: Click the "Show Information" button.

• Expected Result: A new window opens with patient information, diagnosis (anxiety) and associated symptoms (agitation, excessive concern).

• Diagnostic Interface Test (Diseases to Symptoms) - interface_maladies:

• Step 1: Selecting "Sadness" symptoms.

• Step 2: Enter Patient Name.

• Step 3: Click the "Show Information" button.

• Expected Outcome: A new window opens with patient information, diagnosis (depression), and associated symptoms (sadness).

• Test of the Advice Interface - creer_interface_Conseil:

• Step 1: Selecting the disease "anxiety".

• Step 2: Click the "Show Tips" button.

• Expected Outcome: A new window opens with specific anxiety tips.

• Button Interface Test - interface_buttons:

• Step 1: Click on the "Find Symptoms" button.

• Expected Result: Opening the symptom diagnostic interface.

• Step 2: Click on the "Give Advice for Mental Disorder" button.

• Expected Outcome: Open the interface to provide disease-based advice.

• Step 3: Click the "Find Disease" button.

• Expected Result: Opening the Disease Diagnostic Interface.

## Conclusion:

Our project achieves its goals by providing an interactive mental health expertise system. The interfaces allow users to diagnose mental illnesses, get advice and search for illnesses based on symptoms. The test results confirmed that the rules and interfaces worked well. The advice provided is consistent with the diseases diagnosed.