

CS157A – Project topics

You will be working on projects in the field of **medical informatics**.

Project Scenario: eTRT is a system that supports data transactions at a hypothetical small/medium clinic specialized in tinnitus retraining therapy (TRT) for the management of hearing disorders.

Additional references: Tarnowska KA, Ras ZW, Jastreboff PJ. [Decision Support System for Diagnosis and Treatment of Hearing Disorders](#). International: Springer; 2017.

Full **requirements specification** for the system is available under (it is a working document):

<https://github.com/tarnowska/eTRT-analysis-git/blob/master/functional-specification.pdf>

Your team will be working on implementing a subset of requirements accordingly to the chosen topic:

Project 1. Patients and visits.

Enter and modify data about patients and their visits (initial and follow-up) to the clinic.

Implement requirements: 1.1, 1.2, 1.3, 3.1-3.4, 1.11.1-1.11.2, 3.13.1-3.13.2.

Sample tables: Patient, Visit, Reference tables: Country, Zip, State, Work status, Occupation

Project 2. Web-based questionnaires for interviewing tinnitus patients.

Enter and store data from patients' interview questionnaires: Initial and Follow-up questionnaires (the templates of the paper form are available).

Implement requirements: 1.4, 1.4.1, 3.5, 1.11.3, 3.13.3.

Sample tables: Visit, Interview, Reference table: Problem.

Project 3. Web-based questionnaires for keeping track of the severity of the hearing problem.

Enter and store data from questionnaires collected at the visits that are used to evaluate the severity of the hearing problem: Tinnitus Handicap Inventory (THI) and Tinnitus Functional Index (TFI). The templates for the paper forms are available.

Implement requirements: 1.4, 1.4.2, 1.4.3, 3.6-3.7.

Sample tables: Visit, THI, TFI.

Project 4. Audiological evaluations and pharmaceuticals.

Enter and store data related to audiological evaluations and to pharmaceuticals taken by patients.

Implement requirements: 1.5, 1.6, 3.8-3.9, 1.11.4, 3.13.4.

Sample tables: Visit, Audiological, Pharmacology, Reference tables: Medicament, Disease, Generic, Chemical category.

Project 5. Medical treatment: sound therapy and counseling.

Keep track of treatment methods applied to patients during their visits to the clinic. The medical protocol for TRT includes sound therapy (treatment using sound generators and other instruments), real-ear measurement (REM) used to fit the instruments, and counseling provided to patients.

Implement requirements: 1.7, 1.8, 1.9, 3.10-3.12, 1.11.5, 3.13.5.

Sample tables: Visit, Instrumentation, REM, Counseling, Reference tables: Instrument type, Instrument model, Instrument category.