MEDILIG

Medical Life Guard: An XHR Software Platform

Microsoft Access Front-End Graphical User Interface (GUI) User Guide

By

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10th of September 2010

1. Introduction

Health professionals are perhaps one of the most difficult user groups to develop software for. Medical field is far too complex and every professional expects the software to do things in a different way. There are still many out there that learned to work with pen and paper, and others that tasted the limitations and complications of many proprietary or legacy health information systems.

We would like to make any MEDILIG user front-end as simple as pen and paper and hide the complexities from the user. We started this long-term effort with one of the most popular and user friendly development tools around, Microsoft Access. There are already many similar 3rd party proprietary projects and legacy systems developed in Microsoft Access and MEDILIG is a path to demonstrate the benefits of migrating to a better open system. In fact MEDILIG has been inspired from such a legacy system that the author developed for neurosurgeons.

Do not be mistaken, MEDILIG is not another Microsoft Access project. It has started with Microsoft Access to demonstrate forms for the user and the excellent linking with SQL Server, which is another product from Microsoft that can be installed and even used free of charge. SQL server is easy to manage, it is powerful, and it is safe to keep your data well organized. But MEDILIG is a cross-platform product. We simply started with Microsoft Technology because it is used by most people around the world and because we have more experience with it.

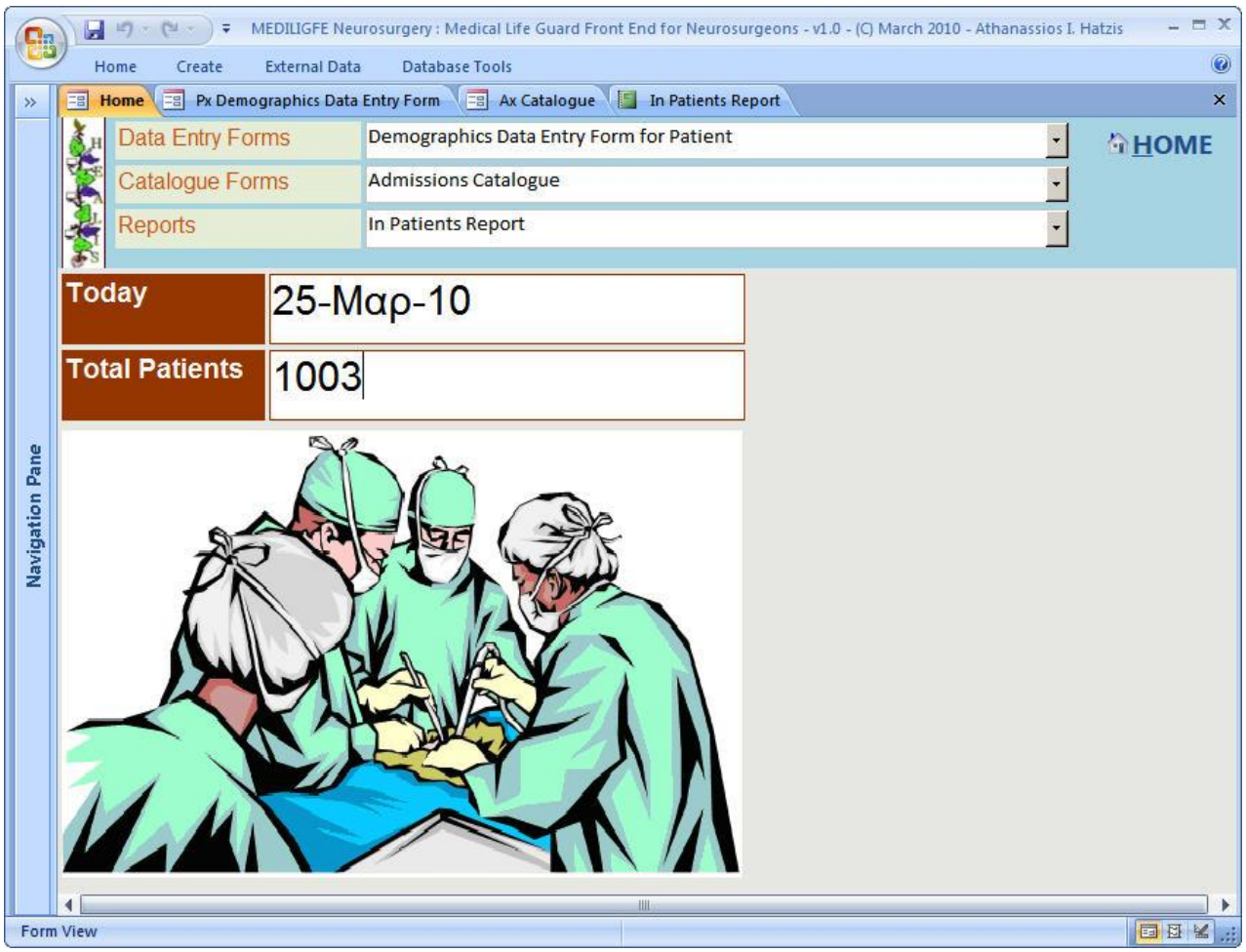
MEDILIG as a product at this phase of development is aiming to cover the needs of individuals, small health centers or clinics that want to manage effectively and have control over their clinical data. It is ideal for those that want to do research on medical field and others that want a simple, compact solution to manage patient records. In this first distribution of MEDILIG, the SQL Server database and MEDILIG Microsoft Access graphical user interface have been customized and tailored to the needs of neurosurgeons. The forms we created in Microsoft Access and the sample data in the database demonstrate this effort. Developers can easily adopt the solution in a few weeks time to cover other specialties and needs of health professionals thanks to the flexible and easy to understand database schema. In fact the schema allows you also to build a continuous care, personal health record.

We would like to see developers and possibly health professionals to build entry forms, reports and catalogues based on MEDILIG database schema and on any rapid application development products such as Microsoft Access for building user interfaces. We would like to join and share our efforts with others. We also anticipate a user movement to standardize or provide alternatives for the content of look-up tables in the database or the notation and the relationships used in MEDILIG database schema. It all depends on the impact it will have on social networks and users.

To conclude this brief introduction, welcome to MEDILIG community. We hope you will enjoy this software product. Please do not hesitate to contact us and discuss any problems, suggestions or proposals you may have.

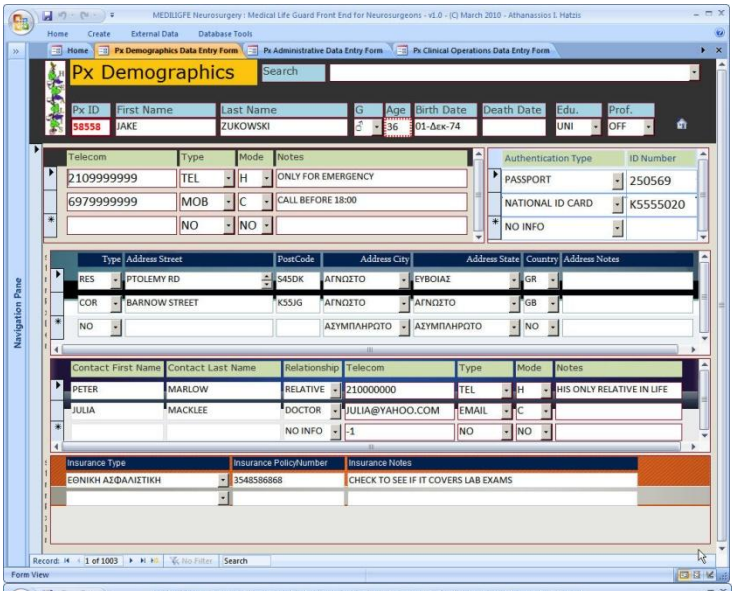
2. Design of Interface

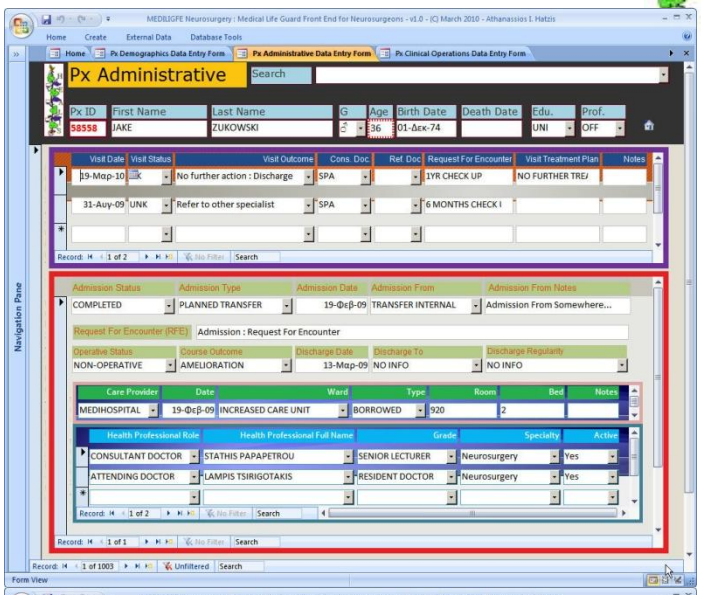
The author has worked for many years as a developer of software for health professionals. These users, as any other non-technical user, want the interface to be as simple as possible. They want to accomplish tasks with a minimal effort; they want clear and simple navigation through the various screens; they want to view and update a minimal set of information tailored to their needs.

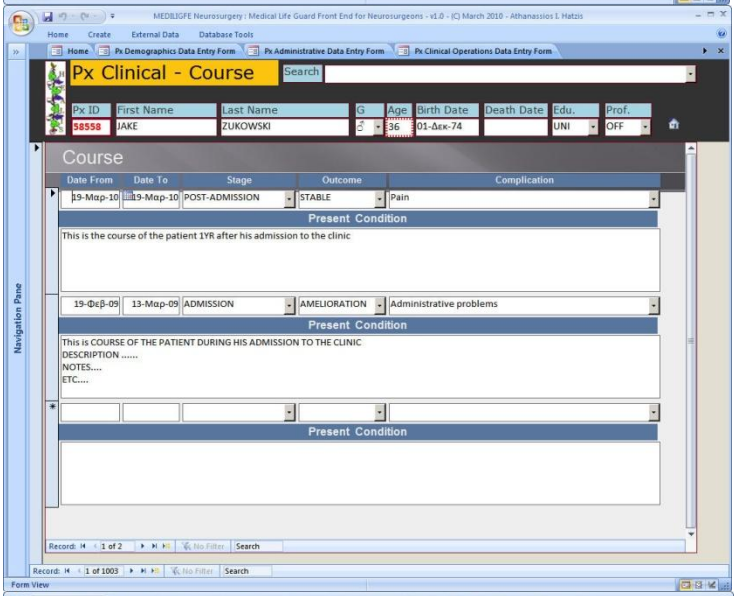


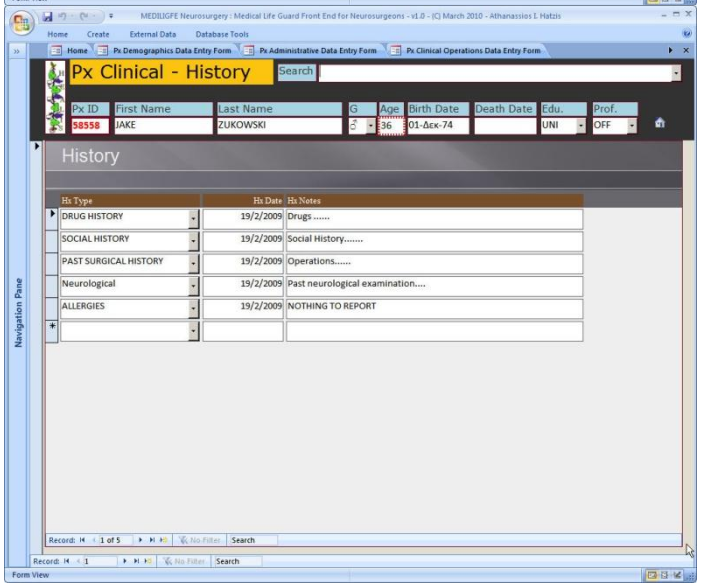
MEDILIG start-up screen provides a simple way to navigate through the various data entry forms, catalogues and reports available. You may select a data entry form to enter demographics, administrative data or to update information about surgical operation, patient's history record or patient's clinical course. Reports are mainly used to create printed forms for any information retrieved from the system. For example, the "***In Patients***" report prints details of patients that are seen as being admitted to a hospital. Catalogues included in this demo version list all admissions, diagnosis processes, clinical observations and laboratory exams for all the registered patients.

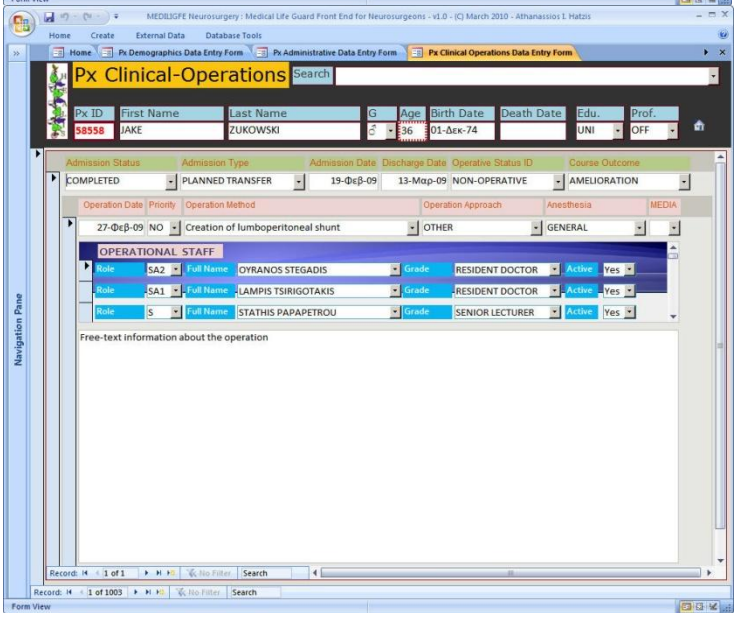
I. Examples of Data Entry Forms



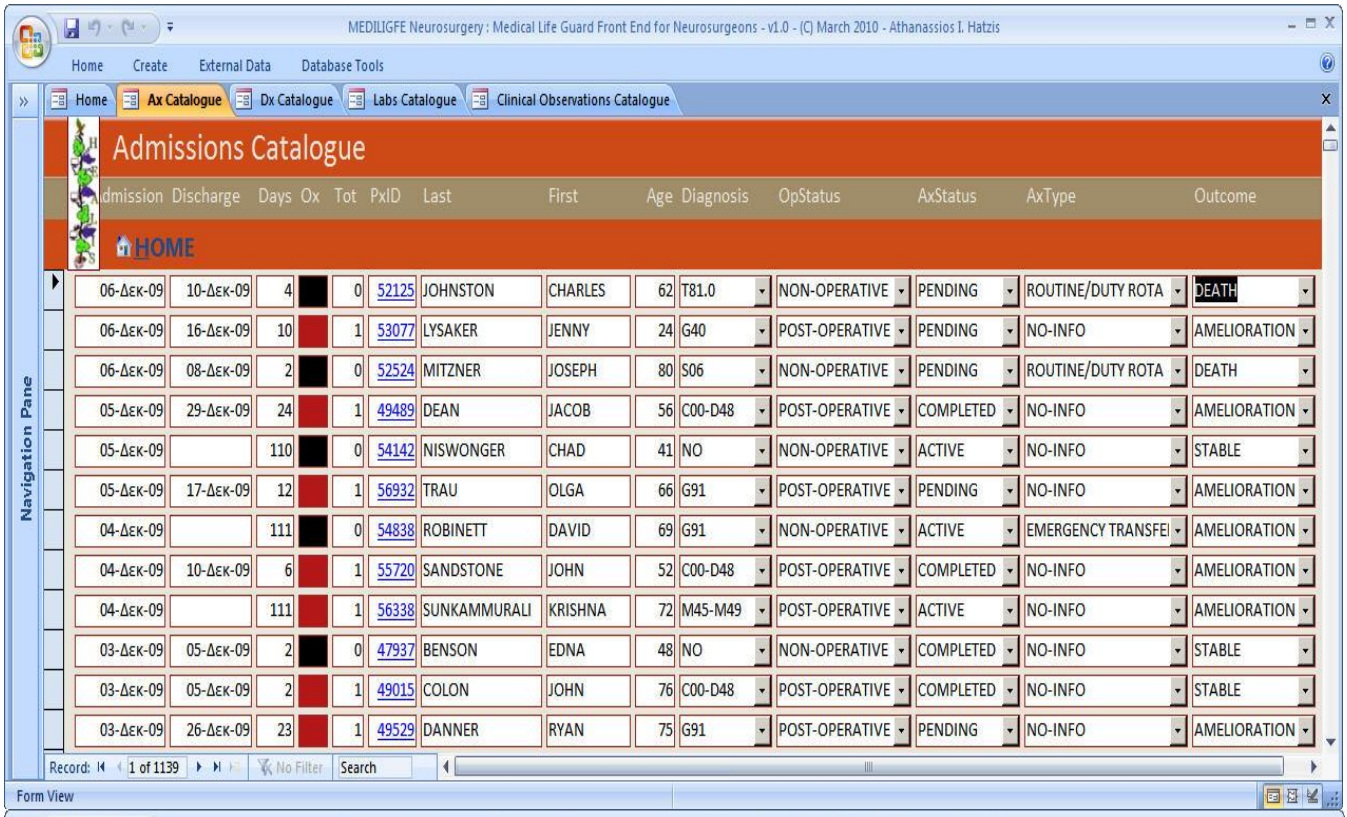




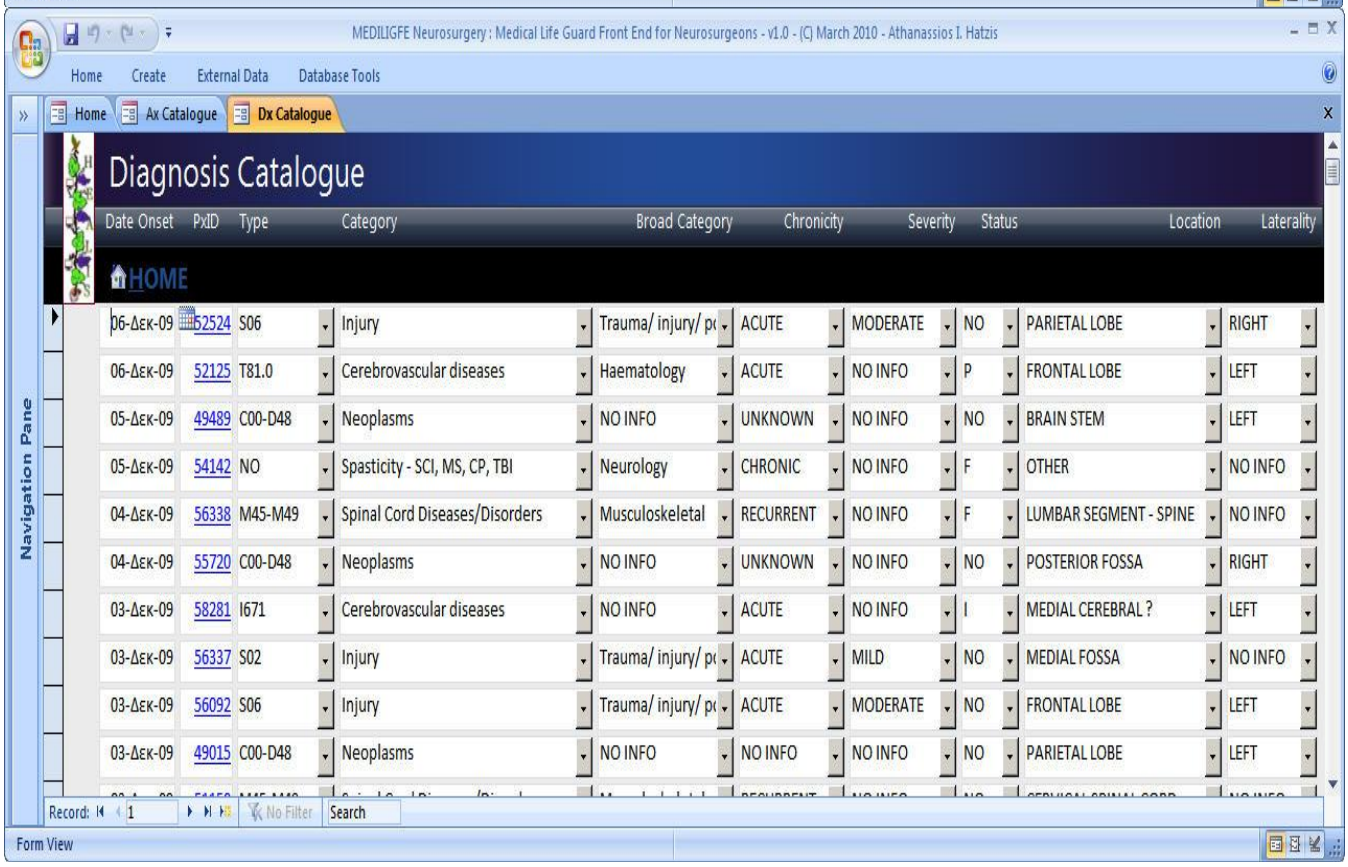




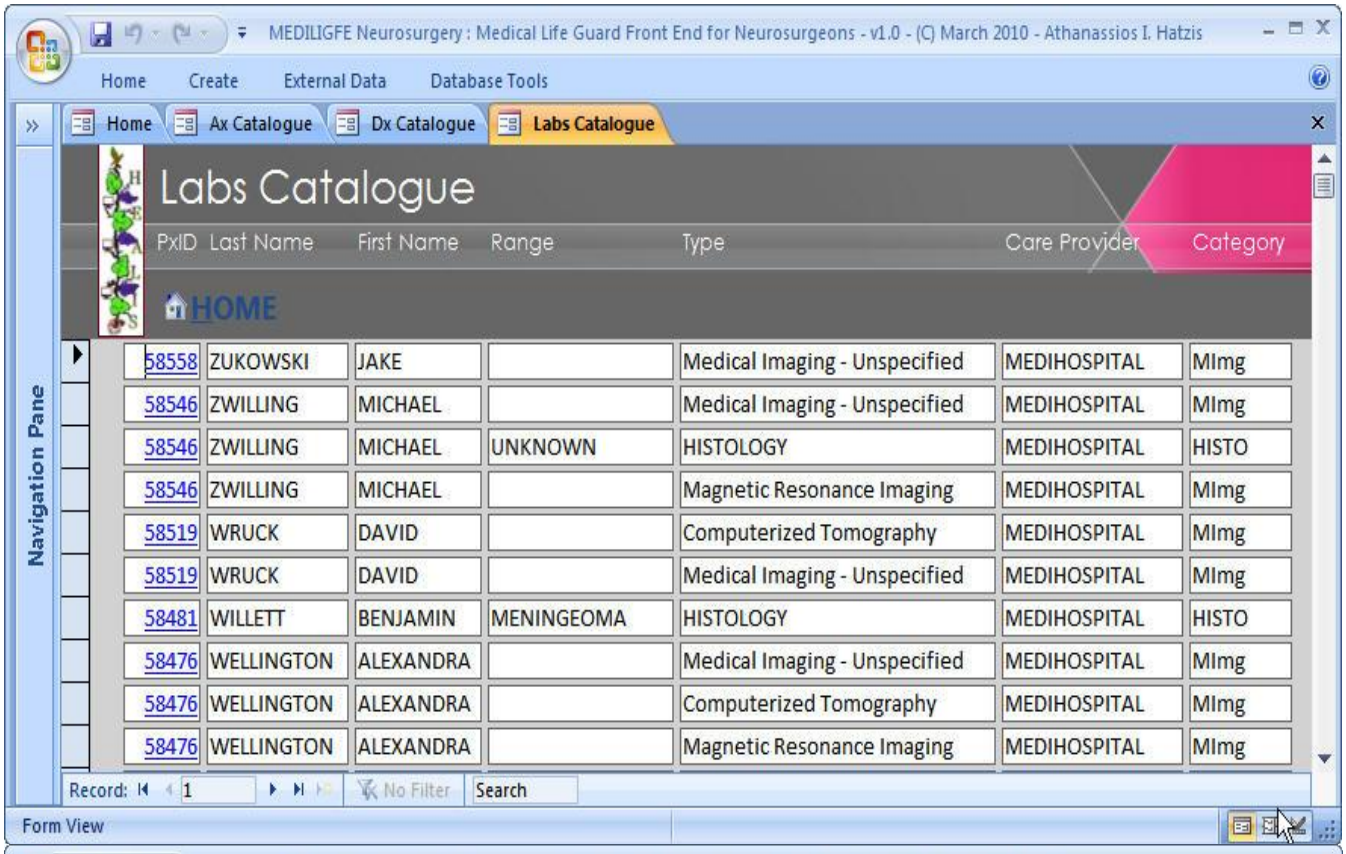
II. Examples of Catalogues

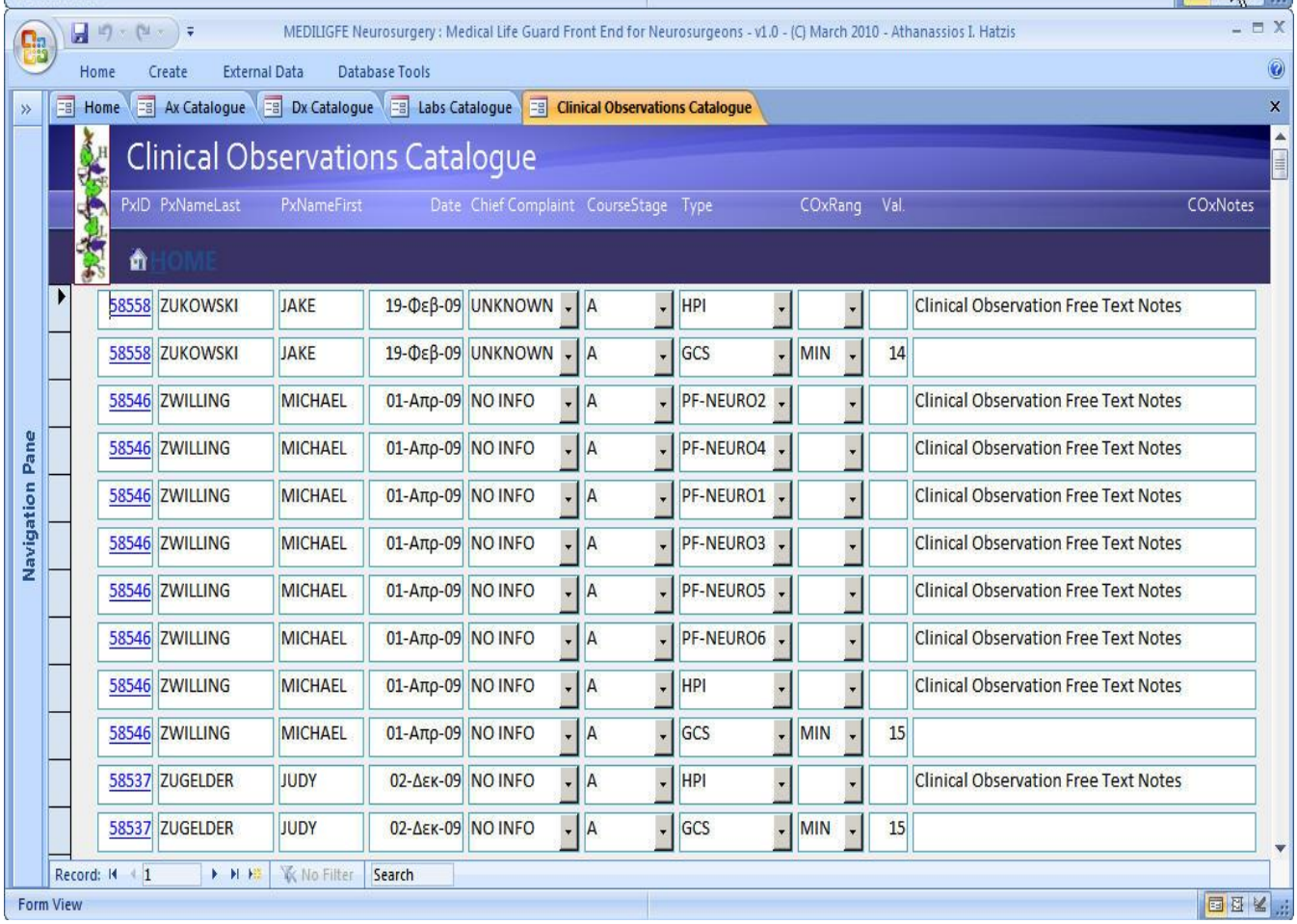


Admission	Discharge	Days	Ox	Tot	PxID	Last	First	Age	Diagnosis	OpStatus	AxStatus	AxType	Outcome
06-Δεκ-09	10-Δεκ-09	4		0	52125	JOHNSTON	CHARLES	62	T81.0	NON-OPERATIVE	PENDING	ROUTINE/DUTY ROTA	DEATH
06-Δεκ-09	16-Δεκ-09	10		1	53077	LYSAKER	JENNY	24	G40	POST-OPERATIVE	PENDING	NO-INFO	AMELIORATION
06-Δεκ-09	08-Δεκ-09	2		0	52524	MITZNER	JOSEPH	80	S06	NON-OPERATIVE	PENDING	ROUTINE/DUTY ROTA	DEATH
05-Δεκ-09	29-Δεκ-09	24		1	49489	DEAN	JACOB	56	C00-D48	POST-OPERATIVE	COMPLETED	NO-INFO	AMELIORATION
05-Δεκ-09		110		0	54142	NISWONGER	CHAD	41	NO	NON-OPERATIVE	ACTIVE	NO-INFO	STABLE
05-Δεκ-09	17-Δεκ-09	12		1	56932	TRAU	OLGA	66	G91	POST-OPERATIVE	PENDING	NO-INFO	AMELIORATION
04-Δεκ-09		111		0	54838	ROBINETT	DAVID	69	G91	NON-OPERATIVE	ACTIVE	EMERGENCY TRANSFEI	AMELIORATION
04-Δεκ-09	10-Δεκ-09	6		1	55720	SANDSTONE	JOHN	52	C00-D48	POST-OPERATIVE	COMPLETED	NO-INFO	AMELIORATION
04-Δεκ-09		111		1	56338	SUNKAMMURALI	KRISHNA	72	M45-M49	POST-OPERATIVE	ACTIVE	NO-INFO	AMELIORATION
03-Δεκ-09	05-Δεκ-09	2		0	47937	BENSON	EDNA	48	NO	NON-OPERATIVE	COMPLETED	NO-INFO	STABLE
03-Δεκ-09	05-Δεκ-09	2		1	49015	COLON	JOHN	76	C00-D48	POST-OPERATIVE	COMPLETED	NO-INFO	STABLE
03-Δεκ-09	26-Δεκ-09	23		1	49529	DANNER	RYAN	75	G91	POST-OPERATIVE	PENDING	NO-INFO	AMELIORATION

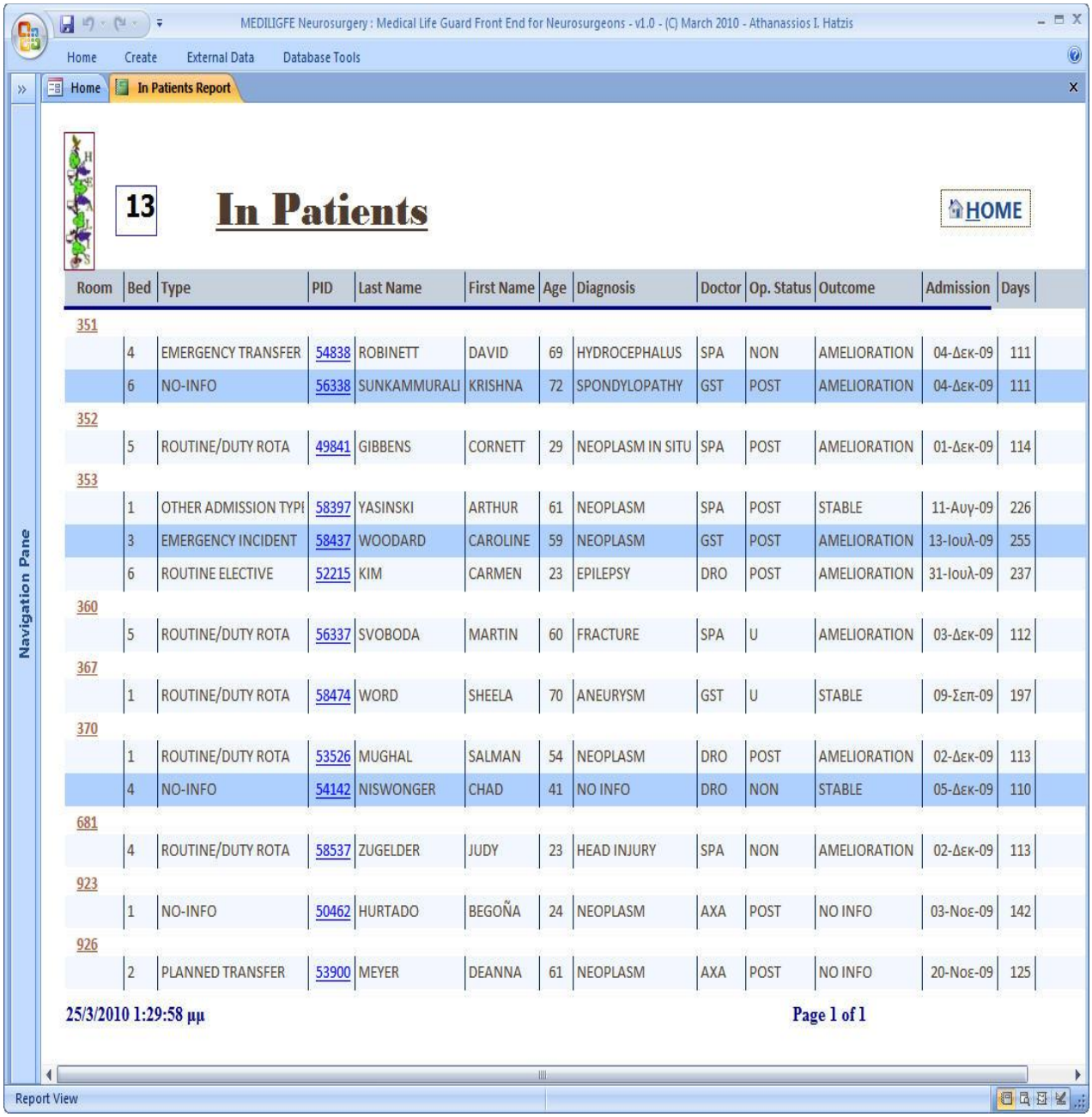


Date Onset	PxID	Type	Category	Broad Category	Chronicity	Severity	Status	Location	Laterality
06-Δεκ-09	52524	S06	Injury	Trauma/ injury/ p	ACUTE	MODERATE	NO	PARIETAL LOBE	RIGHT
06-Δεκ-09	52125	T81.0	Cerebrovascular diseases	Haematology	ACUTE	NO INFO	P	FRONTAL LOBE	LEFT
05-Δεκ-09	49489	C00-D48	Neoplasms	NO INFO	UNKNOWN	NO INFO	NO	BRAIN STEM	LEFT
05-Δεκ-09	54142	NO	Spasticity - SCI, MS, CP, TBI	Neurology	CHRONIC	NO INFO	F	OTHER	NO INFO
04-Δεκ-09	56338	M45-M49	Spinal Cord Diseases/Disorders	Musculoskeletal	RECURRENT	NO INFO	F	LUMBAR SEGMENT - SPINE	NO INFO
04-Δεκ-09	55720	C00-D48	Neoplasms	NO INFO	UNKNOWN	NO INFO	NO	POSTERIOR FOSSA	RIGHT
03-Δεκ-09	58281	I671	Cerebrovascular diseases	NO INFO	ACUTE	NO INFO	I	MEDIAL CEREBRAL ?	LEFT
03-Δεκ-09	56337	S02	Injury	Trauma/ injury/ p	ACUTE	MILD	NO	MEDIAL FOSSA	NO INFO
03-Δεκ-09	56092	S06	Injury	Trauma/ injury/ p	ACUTE	MODERATE	NO	FRONTAL LOBE	LEFT
03-Δεκ-09	49015	C00-D48	Neoplasms	NO INFO	NO INFO	NO INFO	NO	PARIETAL LOBE	LEFT


MEDILIGFE Neurosurgery : Medical Life Guard Front End for Neurosurgeons - v1.0 - (C) March 2010 - Athanassios I. Hatzis
Home
Create
External Data
Database Tools
Home
Ax Catalogue
Dx Catalogue
Labs Catalogue
Labs Catalogue
PxID Last Name First Name Range Type Care Provider Category
HOME
Navigation Pane
58558 ZUKOWSKI JAKE Medical Imaging - Unspecified MEDIHOSPITAL MImg
58546 ZWILLING MICHAEL Medical Imaging - Unspecified MEDIHOSPITAL MImg
58546 ZWILLING MICHAEL UNKNOWN HISTOLOGY MEDIHOSPITAL HISTO
58546 ZWILLING MICHAEL Magnetic Resonance Imaging MEDIHOSPITAL MImg
58519 WRUCK DAVID Computerized Tomography MEDIHOSPITAL MImg
58519 WRUCK DAVID Medical Imaging - Unspecified MEDIHOSPITAL MImg
58481 WILLETT BENJAMIN MENINGEOMA HISTOLOGY MEDIHOSPITAL HISTO
58476 WELLINGTON ALEXANDRA Medical Imaging - Unspecified MEDIHOSPITAL MImg
58476 WELLINGTON ALEXANDRA Computerized Tomography MEDIHOSPITAL MImg
58476 WELLINGTON ALEXANDRA Magnetic Resonance Imaging MEDIHOSPITAL MImg
Record: 1
No Filter
Search
Form View


MEDILIGFE Neurosurgery : Medical Life Guard Front End for Neurosurgeons - v1.0 - (C) March 2010 - Athanassios I. Hatzis
Home
Create
External Data
Database Tools
Home
Ax Catalogue
Dx Catalogue
Labs Catalogue
Clinical Observations Catalogue
Clinical Observations Catalogue
PxID PxNameLast PxNameFirst Date Chief Complaint CourseStage Type COxRang Val. COxNotes
HOME
Navigation Pane
58558 ZUKOWSKI JAKE 19-Φεβ-09 UNKNOWN A HPI Clinical Observation Free Text Notes
58558 ZUKOWSKI JAKE 19-Φεβ-09 UNKNOWN A GCS MIN 14
58546 ZWILLING MICHAEL 01-Απρ-09 NO INFO A PF-NEURO2 Clinical Observation Free Text Notes
58546 ZWILLING MICHAEL 01-Απρ-09 NO INFO A PF-NEURO4 Clinical Observation Free Text Notes
58546 ZWILLING MICHAEL 01-Απρ-09 NO INFO A PF-NEURO1 Clinical Observation Free Text Notes
58546 ZWILLING MICHAEL 01-Απρ-09 NO INFO A PF-NEURO3 Clinical Observation Free Text Notes
58546 ZWILLING MICHAEL 01-Απρ-09 NO INFO A PF-NEURO5 Clinical Observation Free Text Notes
58546 ZWILLING MICHAEL 01-Απρ-09 NO INFO A PF-NEURO6 Clinical Observation Free Text Notes
58546 ZWILLING MICHAEL 01-Απρ-09 NO INFO A HPI Clinical Observation Free Text Notes
58546 ZWILLING MICHAEL 01-Απρ-09 NO INFO A GCS MIN 15
58537 ZUGELDER JUDY 02-Δεκ-09 NO INFO A HPI Clinical Observation Free Text Notes
58537 ZUGELDER JUDY 02-Δεκ-09 NO INFO A GCS MIN 15
Record: 1
No Filter
Search
Form View

III. Examples of Reports



Room	Bed	Type	PID	Last Name	First Name	Age	Diagnosis	Doctor	Op. Status	Outcome	Admission	Days
351												
	4	EMERGENCY TRANSFER	54838	ROBINETT	DAVID	69	HYDROCEPHALUS	SPA	NON	AMELIORATION	04-Δεκ-09	111
	6	NO-INFO	56338	SUNKAMMURALI	KRISHNA	72	SPONDYLOPATHY	GST	POST	AMELIORATION	04-Δεκ-09	111
352												
	5	ROUTINE/DUTY ROTA	49841	GIBBENS	CORNETT	29	NEOPLASM IN SITU	SPA	POST	AMELIORATION	01-Δεκ-09	114
353												
	1	OTHER ADMISSION TYPI	58397	YASINSKI	ARTHUR	61	NEOPLASM	SPA	POST	STABLE	11-Αυγ-09	226
	3	EMERGENCY INCIDENT	58437	WOODARD	CAROLINE	59	NEOPLASM	GST	POST	AMELIORATION	13-Ιουλ-09	255
	6	ROUTINE ELECTIVE	52215	KIM	CARMEN	23	EPILEPSY	DRO	POST	AMELIORATION	31-Ιουλ-09	237
360												
	5	ROUTINE/DUTY ROTA	56337	SVOBODA	MARTIN	60	FRACTURE	SPA	U	AMELIORATION	03-Δεκ-09	112
367												
	1	ROUTINE/DUTY ROTA	58474	WORD	SHEELA	70	ANEURYSM	GST	U	STABLE	09-Σεπ-09	197
370												
	1	ROUTINE/DUTY ROTA	53526	MUGHAL	SALMAN	54	NEOPLASM	DRO	POST	AMELIORATION	02-Δεκ-09	113
	4	NO-INFO	54142	NISWONGER	CHAD	41	NO INFO	DRO	NON	STABLE	05-Δεκ-09	110
681												
	4	ROUTINE/DUTY ROTA	58537	ZUGELDER	JUDY	23	HEAD INJURY	SPA	NON	AMELIORATION	02-Δεκ-09	113
923												
	1	NO-INFO	50462	HURTADO	BEGOÑA	24	NEOPLASM	AXA	POST	NO INFO	03-Νοε-09	142
926												
	2	PLANNED TRANSFER	53900	MEYER	DEANNA	61	NEOPLASM	AXA	POST	NO INFO	20-Νοε-09	125

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3. Testing Dataset

MEDILIG Database has been populated with over a thousand patients. Electronic medical records of these patients are fictional although we made an effort to rationalize the data inside to appear plausible. Each patient may have one or more **admissions** to a neurosurgery clinic. The same patient for each admission may have been operated on one or more times. One-to-Many relationships between Patient, Admission and Operation entities appear on the demonstration data entry forms, catalogues and reports of this software release.

Start from the HOME screen and select the demographics data entry form, click the corresponding combo box for this action. The "**Px Demographics Data Entry Form"** will be opened for the most recent patient (**JAKE ZUKOWSKI**). Feel free to update information and most of all click any of the combo boxes to see the multilingual coding scheme for certain properties. By selecting the administrative data entry form a window with all the visits and admissions of this patient together with the consultant and attending doctors will appear. Similarly you may continue to explore the record of this patient by selecting the clinical history, clinical course, and surgical operations from the corresponding combo box selections.

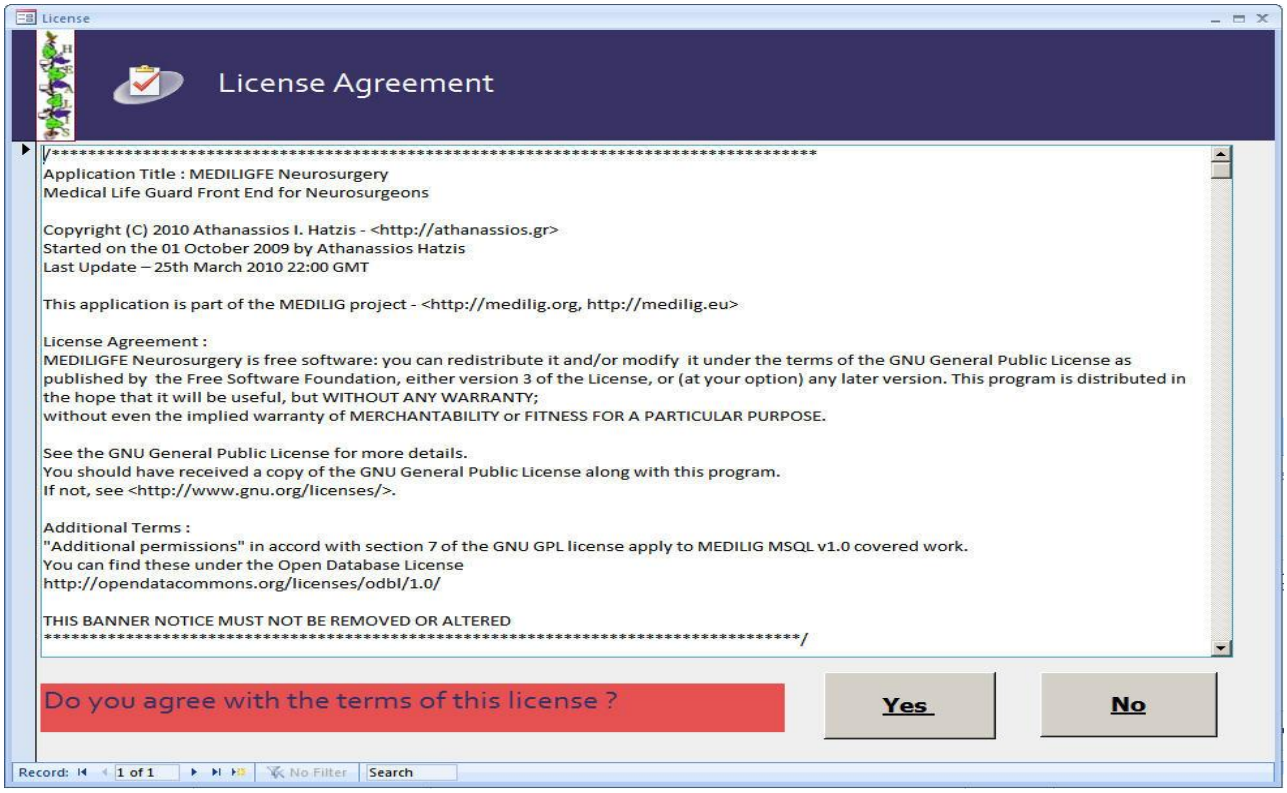
Catalogues appear to have the same logic like an Excel spreadsheet. You can view multiple records as rows in a table. Right click any cell on any of the table columns, a pop-up menu will appear. You may select to filter or sort records this way.

4. Licensing

MEDILIG project is released to the public with two licenses that are combined together as it is seen in the following screen. The reason that we have not covered MEDILIG with only the GNU GPL license is that the open database design and use, which is a fundamental part of this project, cannot be sufficiently covered by an open license such as GPL that is targeted and focused on the programming code of applications.

If you are a health professional aiming to build a solution based on open-source projects then GPL protects you from any developer or vendor that wants to offer exclusively services to you for configuration, customization, adaptation, maintenance, support, etc. You have an open system and you can hire anyone to support it or adapt it to your needs. But GPL cannot cover you sufficiently on the rights you have on the use of a database. For example do you have the right to export all your data digitally into another form or database management system? Does the developer have the right to prevent you from such use by locking the database? Are you granted rights on creating a derivative database from the existing one or use the existing database collectively as part of some other system developed? Open Database License (ODbL) has been written to strengthen and grant you database rights. We included such a license with the release of this project exactly for that purpose.

Well, what about the developer point of view? Many will probably dislike that action of granting all these rights to the user as the user may not need anymore the services of the developer or the vendor. We think this is a very narrow minded view as the main idea behind the MEDILIG project is to promote collaborative innovative networks and medical practice-based research networks. Software should not lock health professional under different camps. On the contrary we anticipate that this way IT will be on the front-stage and many more job posts specialized to cover the new health industry needs will be created. It may also increase the opportunity for developers to practice as freelancers with a better fee.



Description	Front End – Graphical User Interface (GUI) for MEDILIG SQL v1.0
Audience	Health IT developers, Researchers, Health Providers, Health Information Managers
Date	March 2010
Source	Created using Microsoft Access 2007
Author	Athanassios I. Hatzis
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Note: For a clear distinction between the terms MEDILIG Database, MEDILIG SQL, MEDILIG MSAccess and the corresponding licenses please read the introductory material placed in the file MEDILIG Introduction.

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