MINISTERUL EDUCAȚIEI ȘI CERCETĂRII ȘTIINȚIFICE



FACULTATEA DE AUTOMATICĂ ȘI CALCULATOARE DEPARTAMENTUL CALCULATOARE

PROIECT

la disciplina Introducere in Baze de Date

Lanț de policlinici

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1. Introducere

Proiectul a presupus crearea unei aplicatii care vine in ajutorul angajatilor, dar si a pacientilor din cadrul sistemului medical. Scopul aplicatiei este de a facilita accesul la baza de date a policlinicilor printr-o interfata inutitiva.

Aplicatia poate fi folosita atat de angajatii din cadrul sistemului medical (doctori, asistenti medicali, receptioneri, administratori, inspectori, expert financiar contabil, etc), cat si de catre pacienti.

Instrumentatie software:

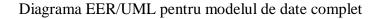
Programele folosite în cadrul realizării proiectului sunt:

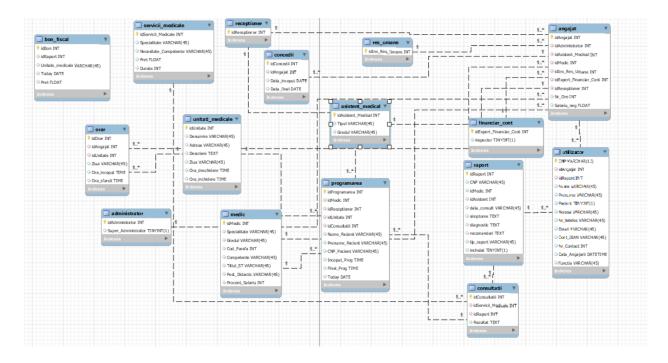
MySQL Workbench - realizarea bazei de date utilizând limbaluj MySQL precum si realizarea diagramei UML a bazei de date

Eclipse – mediu de programare Java

Apache NetBeans IDE – pentru realizarea interfetelor grafice

2. Baza de date





Cod de creare a bazei de date:

Bon Fiscal:

DROP TABLE IF EXISTS `policlinica`.`bon_fiscal`;

```
CREATE TABLE `policlinica`.`bon_fiscal` (
`idBon` INT NOT NULL AUTO_INCREMENT,
`idRaport` INT NULL,
`Unitate_medicala` VARCHAR(45) NULL,
`Today` DATE NULL,
`Pret` FLOAT NULL,
PRIMARY KEY (`idBon`));
```

Medic:

DROP TABLE IF EXISTS 'policlinica'. 'medic';

```
CREATE TABLE `policlinica`.`medic` (
  `idMedic` INT NOT NULL AUTO_INCREMENT,
  `Specialitate` VARCHAR(45) NULL,
```

```
`Gradul` VARCHAR(45) NULL,
`Cod_Parafa` INT NULL,
`Competente` VARCHAR(45) NULL,
`Titlul_ST` VARCHAR(45) NULL,
`Post_Didactic` VARCHAR(45) NULL,
`Procent_Salariu` INT NULL,
```

PRIMARY KEY ('idMedic'));

Administrator:

DROP TABLE IF EXISTS 'policlinica'. 'administrator';

```
CREATE TABLE `policlinica`.`administrator` (
`idAdministrator` INT NOT NULL AUTO_INCREMENT,
`Super_Administrator` BOOLEAN NULL,
PRIMARY KEY (`idAdministrator`));
```

Asistent Medical:

DROP TABLE IF EXISTS `policlinica`.`asistent_medical`;

```
CREATE TABLE `policlinica`.`asistent_medical` (
`idAsistent_Medical` INT NOT NULL AUTO_INCREMENT,
`Tipul` VARCHAR(45) NULL,
`Gradul` VARCHAR(45) NULL,
PRIMARY KEY (`idAsistent_Medical`));
```

Resurse Umane:

DROP TABLE IF EXISTS 'policlinica'.'Res_umane';

```
CREATE TABLE `policlinica`.`Res_umane` (
`idIns_Res_Umane` INT NOT NULL AUTO_INCREMENT,
PRIMARY KEY (`idIns_Res_Umane`));
```

Financiar Contabil:

DROP TABLE IF EXISTS `policlinica`.`Financiar_cont`;

```
CREATE TABLE `policlinica`.`Financiar_cont` (
`idExpert_Financiar_Cont` INT NOT NULL AUTO_INCREMENT,
`inspector` BOOLEAN NULL,
PRIMARY KEY (`idExpert_Financiar_Cont`));
```

Receptioner:

```
DROP TABLE IF EXISTS 'policlinica'. 'receptioner';
```

```
CREATE TABLE `policlinica`.`receptioner` (
`idReceptioner` INT NOT NULL AUTO_INCREMENT,
PRIMARY KEY (`idReceptioner`));
```

Unitati medicale:

DROP TABLE IF EXISTS `policlinica`.`Unitati_medicale`;

```
CREATE TABLE `policlinica`.`Unitati_medicale` (
  `idUnitate` INT NOT NULL AUTO_INCREMENT,
  `Denumire` VARCHAR(45) NULL,
  `Adresa` VARCHAR(45) NULL,
  `Descriere` TEXT NULL,
  `Ziua` VARCHAR(45) NULL,
  `Ora_deschidere` TIME NULL,
  `Ora_inchidere` TIME NULL,
  PRIMARY KEY (`idUnitate`));
```

Raport:

DROP TABLE IF EXISTS `policlinica`.`Raport`;

```
CREATE TABLE `policlinica`.`Raport` (
`idRaport` INT NOT NULL AUTO_INCREMENT,
`CNP` VARCHAR(45) NULL,
`idMedic` INT NULL,
`idAsistent` INT NULL,
`data_consult` VARCHAR(45) NULL,
`simptome` TEXT NULL,
`diagnostic` TEXT NULL,
`recomandari` TEXT NULL,
`tip_raport` VARCHAR(45) NULL,
`incheiat` BOOLEAN NULL,
PRIMARY KEY (`idRaport`));
```

Servicii medicale:

```
DROP TABLE IF EXISTS 'policlinica'. 'servicii_medicale';
```

```
CREATE TABLE `policlinica`.`servicii_medicale` (
`idServicii_Medicale` INT NOT NULL AUTO_INCREMENT,
```

```
`Specialitate` VARCHAR(45) NULL,
`Necesitate_Competente` VARCHAR(45) NULL,
`Pret` FLOAT NULL,
`Durata` INT NULL,
PRIMARY KEY (`idServicii Medicale`));
```

Consultatii:

```
DROP TABLE IF EXISTS 'policlinica'. 'consultatii';
```

```
CREATE TABLE `policlinica`.`consultatii` (
    `idConsultatii` INT NOT NULL AUTO_INCREMENT,
    `idServicii_Medicale` INT NULL,
    `idRaport` INT NULL,
    `Rezultat` TEXT NULL,
    INDEX `fk_consultatii_servicii_medicale_idx`(`idServicii_Medicale` ASC),
    INDEX `fk_consultatii_raport_idx`(`idRaport` ASC),
    CONSTRAINT `fk_consultatii_raport_idx`
    FOREIGN KEY (`idRaport`)
    REFERENCES `policlinica`.`Raport`(`idRaport`),
    CONSTRAINT `fk_consultatii_servicii_medicale_idx`
    FOREIGN KEY (`idServicii_Medicale`)
    REFERENCES `policlinica`.`servicii_medicale`(`idServicii_medicale`),
    PRIMARY KEY (`idConsultatii`));
```

Programari:

DROP TABLE IF EXISTS 'policlinica'. 'programarea';

```
CREATE TABLE `policlinica`.`programarea` (
`idProgramarea` INT NOT NULL AUTO_INCREMENT,
`idMedic` INT NULL,
`idReceptioner` INT NULL,
`idUnitate` INT NULL,
`idConsultatii` INT NULL,
`Nume_Pacient` VARCHAR(45) NULL,
'Prenume Pacient' VARCHAR(45) NULL,
`CNP_Pacient` VARCHAR(45) NULL,
`Inceput_Prog` TIME NULL,
`Final_Prog` TIME NULL,
`Today` DATE NULL,
INDEX `fk_programare_medic_idx` (`idMedic` ASC),
INDEX `fk_programare_receptioner_idx` (`idReceptioner` ASC),
INDEX `fk_programare_unitate_idx` (`idUnitate` ASC),
INDEX `fk_programare_consultatii_idx` (`idConsultatii` ASC),
CONSTRAINT `fk_programare_receptioner_idx`
```

```
FOREIGN KEY ('idReceptioner')
  REFERENCES 'policlinica'. 'Receptioner' ('idReceptioner'),
 CONSTRAINT `fk programare unitate idx`
  FOREIGN KEY ('idUnitate')
  REFERENCES 'policlinica'. 'Unitati medicale' ('idUnitate'),
 CONSTRAINT `fk_angajat_medic_idx`
  FOREIGN KEY ('idMedic')
  REFERENCES `policlinica`.`Medic` (`idMedic`),
 CONSTRAINT `fk_programare_consultatii_idx`
  FOREIGN KEY ('idConsultatii')
  REFERENCES 'policlinica'. 'consultatii' ('idConsultatii'),
 PRIMARY KEY (`idProgramarea`));
Angajat:
DROP TABLE IF EXISTS 'policlinica'. 'angajat';
CREATE TABLE 'policlinica'. 'angajat' (
      `idAngajat` INT(11) NOT NULL AUTO_INCREMENT,
      `idAdministrator` INT(11) NULL DEFAULT NULL,
      `idAsistent_Medical` INT(11) NULL DEFAULT NULL,
      'idMedic' INT(11) NULL,
  `idIns_Res_Umane` INT(11) NULL,
  `idExpert Financiar Cont` INT(11) NULL,
  `idReceptioner` INT(11) NULL,
      `Nr_Ore` INT(11) NULL DEFAULT NULL,
      `Salariu_neg` FLOAT NULL DEFAULT NULL,
 INDEX `fk_angajat_administrator1_idx` (`idAdministrator` ASC),
 INDEX `fk_angajat_asistent_medical1_idx` (`idAsistent_Medical` ASC),
 INDEX `fk_angajat_medic1_idx` (`idMedic` ASC),
 INDEX `fk_angajat_res_um_idx` (`idIns_Res_Umane` ASC),
 INDEX `fk_angajat_expert_idx` (`idExpert_Financiar_Cont` ASC),
 INDEX `fk_angajat_receptioner_idx` (`idReceptioner` ASC),
 CONSTRAINT 'fk angajat receptioner idx'
  FOREIGN KEY ('idReceptioner')
  REFERENCES 'policlinica'. 'Receptioner' ('idReceptioner'),
 CONSTRAINT 'fk angajat expert idx'
  FOREIGN KEY ('idExpert_Financiar_Cont')
  REFERENCES `policlinica`.`Financiar_Cont` ('idExpert_Financiar_Cont`),
 CONSTRAINT `fk_angajat_res_um_idx`
  FOREIGN KEY (`idIns_Res_Umane`)
  REFERENCES 'policlinica'.'Res_Umane' ('idIns_Res_Umane'),
 CONSTRAINT `fk_angajat_administrator1`
  FOREIGN KEY ('idAdministrator')
  REFERENCES 'policlinica'. 'administrator' ('idAdministrator'),
 CONSTRAINT `fk_angajat_asistent_medical1`
```

```
FOREIGN KEY ('idAsistent_Medical')
REFERENCES 'policlinica'. 'asistent_medical' ('idAsistent_Medical'),
CONSTRAINT 'fk_angajat_medic1'
FOREIGN KEY ('idMedic')
REFERENCES 'policlinica'. 'medic' ('idMedic'),
PRIMARY KEY ('idAngajat'));

Utilizator:

DROP TABLE IF EXISTS 'policlinica'. 'utilizator';

CREATE TABLE 'policlinica'. 'utilizator' (
'CNP' VARCHAR(13) NOT NULL,
'idAngajat' INT(11) NULL,
```

`Pacient` BOOLEAN NULL,
`Adresa` VARCHAR(45) NULL,

`idRaport` INT(11) NULL,
`Nume` VARCHAR(45) NULL,
`Prenume` VARCHAR(45) NULL,

`Nr_telefon` VARCHAR(45) NULL,

`Email` VARCHAR(45) NULL,

`Cont_IBAN` VARCHAR(45) NULL,

`Nr_Contact` INT NULL,

`Data_Angajarii` DATETIME NULL,

`Functia` VARCHAR(45) NULL,

INDEX `fk_utilizator_angajat_idx` (`idAngajat` ASC),

INDEX `fk_utilizator_raport_idx` (`idRaport` ASC),

CONSTRAINT `fk_utilizator_angajat_idx`

FOREIGN KEY ('idAngajat')

REFERENCES 'policlinica'. 'angajat' ('idAngajat'),

CONSTRAINT `fk_utilizator_raport_idx`

FOREIGN KEY ('idRaport')

REFERENCES 'policlinica'. 'Raport' ('idRaport'),

PRIMARY KEY (`CNP`));

Orar:

DROP TABLE IF EXISTS `policlinica`.`Orar`;

CREATE TABLE `policlinica`.`Orar` (
`idOrar` INT NOT NULL AUTO_INCREMENT,
`idAngajat` INT NULL,
`idUnitate` INT NULL,
`Ziua` VARCHAR(45) NULL,
`Ora_inceput` TIME NULL,
`Ora_sfarsit` TIME NULL,

```
INDEX `fk_orar_angajat_idx` (`idAngajat` ASC),
INDEX `fk_orar_unitati_idx` (`idUnitate` ASC),
CONSTRAINT `fk_orar_angajat_idx`
FOREIGN KEY (`idAngajat`)
REFERENCES `policlinica`.`angajat` (`idAngajat`),
CONSTRAINT `fk_orar_unitati_idx`
FOREIGN KEY (`idUnitate`)
REFERENCES `policlinica`.`Unitati_medicale` (`idUnitate`),
PRIMARY KEY (`idOrar`));
```

Concedii:

```
CREATE TABLE `policlinica`.`concedii` (
  `idConcedii` INT NOT NULL AUTO_INCREMENT,
  `idAngajat` INT NULL,
  `Data_inceput` DATE NULL,
  `Data_final` DATE NULL,
  PRIMARY KEY (`idConcedii`),
  INDEX `fk_concedii_angajat_idx` (`idAngajat` ASC) VISIBLE,
  CONSTRAINT `fk_concedii_angajat`
  FOREIGN KEY (`idAngajat`)
  REFERENCES `policlinica`.`angajat` (`idAngajat`)
  ON DELETE NO ACTION
  ON UPDATE NO ACTION);
```

3. Proceduri. Evenimente

Lista de proceduri:

- Add_policlinica
- Add_utilizator
- Alter_asistent_medical
- Alter_medic
- Cauta_medic
- Cauta_CNP_asistent
- Cauta_CNP_medic
- Drop_policlinica
- Drop_utilizator
- Drop_raport
- Raport

Cateva dintre procedurile folosite sunt:

Adaugarea unei policlinici:

```
CREATE PROCEDURE 'policlinica'. 'add_policlinica' (Denumire_unitate VARCHAR(45), ad
VARCHAR(45), Descr VARCHAR(45), Zi VARCHAR(45), ora1 TIME, ora2 TIME)
BEGIN
      #set @tp := tip, @col := new_coloana, @tab := tabel, @after_c = dupa_coloana;
  INSERT INTO unitati medicale
         (Denumire, Adresa, Descriere, Ziua, Ora deschidere, Ora inchidere)
         VALUES
         (Denumire unitate, ad, Descr, Zi, ora1, ora2);
END//
delimiter;
Stergerea unei policlinici:
DROP PROCEDURE if EXISTS `policlinica`.`drop_policlinica`;
delimiter //
CREATE PROCEDURE `policlinica`.`drop policlinica`(Id INT)
BEGIN
  DELETE FROM 'policlinica'.'unitati_medicale' WHERE ('idUnitate' = Id);
END//
Cautarea CNP-ului unui medic:
DROP PROCEDURE IF EXISTS policlinica.cautaCNP_medic;
delimiter //
CREATE PROCEDURE policlinica.cautaCNP_medic(id_M INT)
BEGIN
  SELECT u.nume,u.prenume,u.CNP
  FROM policlinica.medic m inner join policlinica.angajat a using (idMedic) inner join
policlinica.utilizator u using (idAngajat)
  where m.idMedic = id_M;
END//
delimiter;
```

Adaugarea unui nou utilizator:

```
USE `policlinica`;
DROP procedure IF EXISTS `policlinica`.`add_utilizator`;
DELIMITER $$
USE `policlinica`$$
CREATE DEFINER=`root`@`localhost` PROCEDURE `add_utilizator`(CNP_utilizator
VARCHAR(13), num VARCHAR(45),
pren VARCHAR(45), Paci TINYINT(1), adrs VARCHAR(45), nr_tel VARCHAR(45), em
VARCHAR(45),
IBAN VARCHAR(45),contact INT, Data_ang DATETIME, fct VARCHAR(45))
BEGIN
      set @f = fct, @id_f = NULL, @id_A = NULL;
      IF @f = "Medic" THEN
      set @f = "Medic";
  INSERT INTO medic
            ()
    VALUES
    ();
  SELECT @id_f := MAX(idMedic) FROM medic;
  INSERT INTO angajat
    (idMedic)
    VALUES
    (@id_f);
  ELSEIF @f = "Asistent Medical" THEN
  set @f = "Asistent Medical";
  INSERT INTO asistent_medical
  ()
  VALUES
  ();
```

```
SELECT @id_f := MAX(idAsistent_Medical) FROM asistent_medical;
INSERT INTO angajat
  (idAsistent_Medical)
  VALUES
  (@id_f);
ELSEIF @f = "Financiar Cont" THEN
set @f = "Financiar Cont";
INSERT INTO financiar_cont
()
VALUES
();
SELECT @id_f := MAX(idExpert_Financiar_Cont) FROM financiar_cont;
INSERT INTO angajat
  (idExpert_Financiar_Cont)
  VALUES
  (@id_f);
    ELSEIF @f = "Administrator" THEN
set @f = "Administrator";
INSERT INTO Administrator
()
VALUES
();
SELECT @id_f := MAX(idAdministrator) FROM administrator;
INSERT INTO angajat
  (idAdministrator)
  VALUES
  (@id_f);
ELSEIF @f = "Receptioner" THEN
```

```
set @f = "Receptioner";
  INSERT INTO receptioner
  ()
  VALUES
  ();
  SELECT @id_f := MAX(idReceptioner) FROM receptioner;
  INSERT INTO angajat
    (idReceptioner)
    VALUES
    (@id_f);
  ELSE
  SET @f = "Pacient";
  END IF;
  IF @f = "Pacient"
  Then
  set @id_A = NULL;
  else
      SELECT @id_A := MAX(idAngajat) FROM Angajat;
  end if;
  INSERT INTO utilizator
        (CNP,
idAngajat ,Nume ,Prenume ,Pacient ,Adresa ,Nr_telefon ,Email ,Cont_IBAN ,Nr_Contact ,
Data_Angajarii, Functia)
        VALUES
        (CNP_utilizator,@id_A ,num ,pren ,Paci ,adrs ,nr_tel ,em ,IBAN,contact , Data_ang ,
@f );
END$$
DELIMITER;
```

Stergerea unui utilizator:

```
DROP PROCEDURE if EXISTS 'policlinica'. 'drop_utilizator';
delimiter //
CREATE PROCEDURE 'policlinica'. 'drop utilizator' (CNP U VARCHAR(13))
BEGIN
  SET @a= NULL, @f = NULL, @d = NULL;
  SELECT @a := u.idAngajat from utilizator u where u.CNP = CNP_U;
  Delete FROM orar where idAngajat = @a;
  Delete FROM concedii where idAngajat = @a;
  SELECT @f := u.Functia from utilizator u where u.CNP = CNP U;
  IF @f = "medic" THEN
    Select @d := m.idMedic from medic m inner join angajat a using (idMedic) where
a.idAngajat = @a;
  ELSEIF @f = "asistent medical" THEN
             Select @d := am.idAsistent_Medical from asistent_medical am inner join angajat
a using (idAsistent Medical) where a.idAngajat = @a;
  ELSEIF @f = "financiar cont" THEN
             Select @d := f.idExpert financiar cont from financiar cont f inner join angajat a
using (idExpert_financiar_cont) where a.idAngajat = @a;
  ELSEIF @f = "receptioner" THEN
             Select @d := r.idReceptioner from receptioner r inner join angajat a using
(idReceptioner) where a.idAngajat = @a;
      ELSEIF @f = "administrator" THEN
             Select @d := r.idAdministrator from administrator ad inner join angajat a using
(idAdministrator) where a.idAngajat = @a;
  ELSE
  SET @f = " ";
  END IF:
  DELETE FROM `utilizator` u WHERE ( u.`CNP` = CNP_U);
  DELETE FROM angajat a WHERE a.idAngajat = @a;
      IF @f = "medic" THEN
    DELETE FROM medic m WHERE m.idMedic = @d;
  ELSEIF @f = "asistent medical" THEN
    DELETE FROM asistent_medical am WHERE am.idAsistent_Medical = @d;
  ELSEIF @f = "financiar cont" THEN
    DELETE FROM financiar_cont f WHERE f.idExpert_Financiar_Cont = @d;
  ELSEIF @f = "receptioner" THEN
    DELETE FROM receptioner r WHERE r.idReceptioner = @d;
      ELSEIF @f = "administrator" THEN
    DELETE FROM Administrator ad WHERE ad.idAdministrator = @d;
  ELSE
  SET @f = " ";
  END IF;
END//
delimiter;
```

Exemple de view-uri folosite:

Pentru vizualizarea rapoartelor:

USE `policlinica`;

CREATE OR REPLACE VIEW `view_Raport` AS select * from raport;

Pentru vizualizarea profiturilor aduse de medici:

USE `policlinica`;

CREATE OR REPLACE VIEW `Profit_medic` AS select p.idUnitate as unit ,sm.Pret as profit,sm.durata as dur,m.idMedic, (a.Nr_Ore*a.Salariu_neg/10) as salar from servicii_medicale sm inner join consultatii using (idServicii_Medicale) inner join programarea p using (idConsultatii) inner join medic m using (idMedic) inner join angajat a using (idMedic);

Pentru vizualizarea angajatilor:

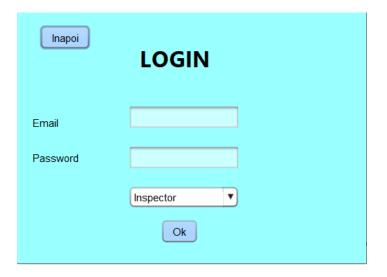
USE `policlinica`;

CREATE OR REPLACE VIEW `view_Angajati` AS select * from angajat;

4. Interfața grafică



Pagina de conectare, unde persoanele aleg departamentul din care fac parte in cazul in care sunt angajati, iar pacienti dau click pe butonul pacient



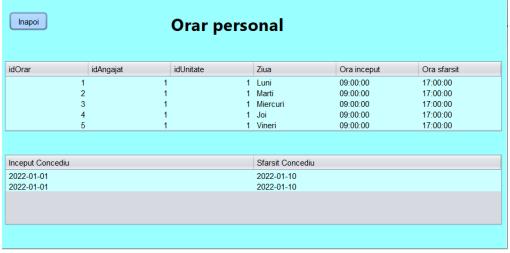
Pagina de login, unde persoana care intra in cont trebuie sa selecteze functia pe care o are

Pentru departamentul de gestiune a resurselor umane, interfetele principale sunt:

Pentru inspectori:



Pentru angajatii de tip: receptioner, medic sau asistent medical



Pentru Expertul financiar contabil:



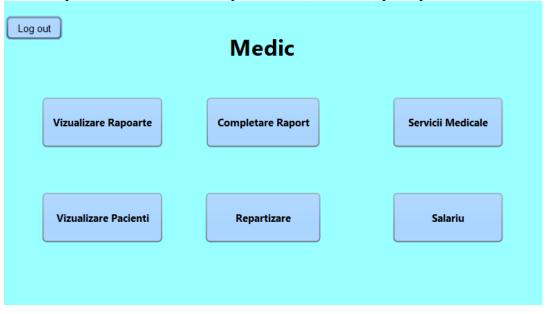
Pentru departamentul de operatii financiar-contabile:

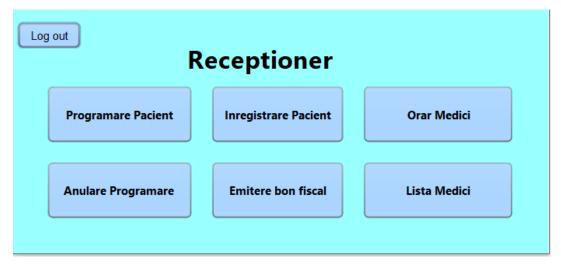






Pentru departamentul activitatilor operationale (medicale), principalele interfete sunt:



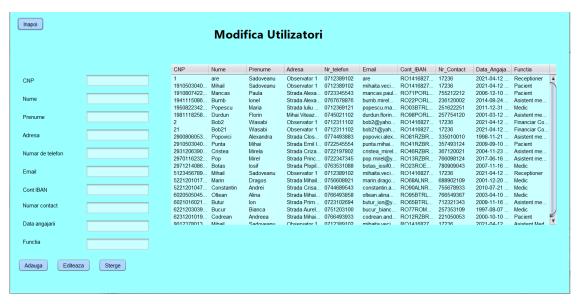




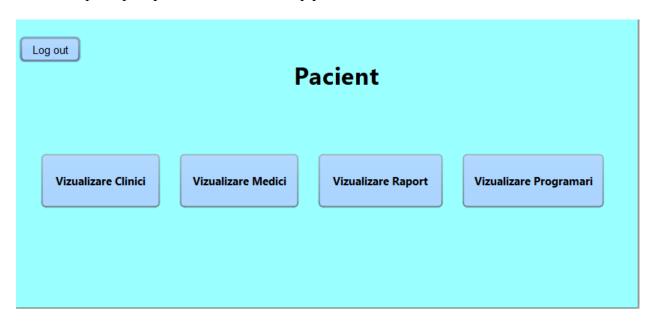
Pentru administratori, interfetele sunt:







Interfetele principale pentru utilizatorul de tip pacient sunt:





5. Clase și secvențe cod Java

Interfata realizata bazei de date Policlinica, este o interfata simpla cu ajutorul careia utilizatorul poate face anumite operatii.

Interfata contine multiple fereste, fiecare fiind asociata unui departament sau functii ce apartin de utilizator.

Codul de conectare la baza de date:

```
try {
                       con = DriverManager.getConnection("jdbc:mysql://localhost/policlinica", "root",
"costea123");
                        statement = (Statement) con.createStatement();
                        ResultSet rs = statement.executeQuery("Select CNP,Email,Functia from
utilizator where CNP = "" + password
                                        + "' and Email = "' + userName + "';");
                        if (rs.next()) {
                                if (!rs.getString("Email").equals(null)) {
                                        JOptionPane.showMessageDialog(this, "Conectare cu succes!");
                                        if (Selectare.getSelectedItem().toString().equals("Pacient")
                                                        && rs.getString("Functia").equals("Pacient")) {
                                                UserParola a = new UserParola(userName, password);
                                                Pacient in = new Pacient(a);
                                                in.show();
                                                dispose();
                                        } else {
                                                JOptionPane.showMessageDialog(this, "Functia
gresita!");
                                        }
                                }
                        } else
                                JOptionPane.showMessageDialog(this, "Parola sau email gresite!");
                } catch (
               SQLException sqlException) {
                        sqlException.printStackTrace();
                }
```