

My Project

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Chapter 1

Hierarchical Index

1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Angajat	7
Receptioner	12
Supervizor	15
Tehnician	16
AngajatFactory	7
CerereReparatie	7
CNPValidator	8
Data	8
Electrocasnic	9
Frigider	10
MasinaDeSpalat	11
TV	18
ElectrocasnicFactory	9
ServiceManager	14

Chapter 2

Class Index

2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Angajat	7
AngajatFactory	7
CerereReparatie	7
CNPValidator	8
Data	8
Electrocasnic	9
ElectrocasnicFactory	9
Frigider	10
MasinaDeSpalat	11
Receptioner	12
ServiceManager	14
Supervizor	15
Tehnician	16
TV	18

Chapter 3

File Index

3.1 File List

Here is a list of all documented files with brief descriptions:

Angajat.h	21
AngajatFactory.h	22
CerereReparatie.h	22
CNPValidator.h	23
Data.h	23
Electrocasnic.h	24
ElectrocasnicFactory.h	24
Frigider.h	24
MasinaDeSpalat.h	25
Receptioner.h	25
ServiceManager.h	25
Supervizor.h	27
Tehnician.h	27
TV.h	28

Chapter 4

Class Documentation

4.1 Angajat Class Reference

Inheritance diagram for Angajat:

4.2 AngajatFactory Class Reference

Static Public Member Functions

- static std::unique_ptr< [Angajat](#) > **creeazaAngajat** (const std::string &tip, const std::string &nume, const std::string &prenume, const std::string &cnp, const [Data](#) &dataAngajarii, const std::string &orasDomiciliu, const std::map< std::string, std::set< std::string > > &specializari={})
- static std::unique_ptr< [Angajat](#) > **creeazaDinCSV** (const std::string &linie)

The documentation for this class was generated from the following files:

- AngajatFactory.h
- AngajatFactory.cpp

4.3 CerereReparatie Class Reference

Public Member Functions

- **CerereReparatie** (std::unique_ptr< [Electrocasnic](#) > _aparatur, const time_t _timestamp, int _nivel↵ Complexitate)
- **CerereReparatie** (const [CerereReparatie](#) &)
- [CerereReparatie](#) & **operator=** (const [CerereReparatie](#) &)
- int **getId** () const
- int **getNivelComplexitate** () const
- const [Electrocasnic](#) * **getAparatur** () const
- time_t **getTimeStamp** () const
- int **getDurataEstimata** () const
- int **getDurataRamasa** () const

- double **getPretReparatie** () const
- StareCerere **getStare** () const
- int **getIdTehnician** () const
- void **setStare** (const StareCerere)
- void **setIdTehnician** (int)
- void **processeaza** ()
- bool **esteFinalizata** () const
- bool **esteValida** () const
- void **afisare** (std::ostream &) const
- std::string **getTimeStampString** () const
- bool **operator**< (const CerereReparatie &) const

The documentation for this class was generated from the following files:

- CerereReparatie.h
- CerereReparatie.cpp

4.4 CNPValidator Class Reference

Static Public Member Functions

- static bool **esteValid** (const std::string &cnp)
- static Data **getDataNasterii** (const std::string &cnp)
- static char **getSex** (const std::string &cnp)

The documentation for this class was generated from the following files:

- CNPValidator.h
- CNPValidator.cpp

4.5 Data Class Reference

Public Member Functions

- **Data** (int, int, int)
- **Data** (const std::string &)
- bool **esteValida** () const
- int **getVarsta** () const
- int **getZi** () const
- int **getLuna** () const
- int **getAn** () const
- bool **operator**< (const Data &)
- bool **operator**> (const Data &)
- bool **operator**== (const Data &)

Static Public Member Functions

- static Data **dataCurenta** ()

Friends

- `std::ostream & operator<< (std::ostream &, const Data &)`

The documentation for this class was generated from the following files:

- `Data.h`
- `Data.cpp`

4.6 Electrocasnic Class Reference

Inheritance diagram for Electrocasnic:

Public Member Functions

- **Electrocasnic** (const std::string &, const std::string &, const std::string &, int, double)
- std::string **getTip** () const
- std::string **getMarca** () const
- std::string **getModel** () const
- int **getAnFabricatie** () const
- double **getPretCatalog** () const
- int **getVechime** () const
- virtual void **afisare** (std::ostream &) const =0
- virtual std::unique_ptr< [Electrocasnic](#) > **cloneaza** () const =0
- bool **operator==** (const [Electrocasnic](#) &altul) const

Protected Attributes

- std::string **tip**
- std::string **marca**
- std::string **model**
- int **anFabricatie**
- double **pretCatalog**

The documentation for this class was generated from the following files:

- `Electrocasnic.h`
- `Electrocasnic.cpp`

4.7 ElectrocasnicFactory Class Reference

Static Public Member Functions

- static std::unique_ptr< [Electrocasnic](#) > **creeazaElectrocasnic** (const std::string &tip, const std::string &marca, const std::string &model, int anFabricatie, double pretCatalog, const std::map< std::string, std::string > &dateSpecifice)
- static std::map< std::string, std::string > **parseazaDateSpecifice** (const std::string &linie)

The documentation for this class was generated from the following files:

- `ElectrocasnicFactory.h`
- `ElectrocasnicFactory.cpp`

4.8 Frigider Class Reference

Inheritance diagram for Frigider:

Collaboration diagram for Frigider:

Public Member Functions

- **Frigider** (const std::string &, const std::string &, int, double, bool)
- bool **getAreCongelator** () const
- void **afisare** (std::ostream &) const override
- std::unique_ptr< [Electrocasnic](#) > **cloneaza** () const override

Public Member Functions inherited from [Electrocasnic](#)

- **Electrocasnic** (const std::string &, const std::string &, const std::string &, int, double)
- std::string **getTip** () const
- std::string **getMarca** () const
- std::string **getModel** () const
- int **getAnFabricatie** () const
- double **getPretCatalog** () const
- int **getVechime** () const
- bool **operator==** (const [Electrocasnic](#) &altul) const

Additional Inherited Members

Protected Attributes inherited from [Electrocasnic](#)

- std::string **tip**
- std::string **marca**
- std::string **model**
- int **anFabricatie**
- double **pretCatalog**

4.8.1 Member Function Documentation

4.8.1.1 afisare()

```
void Frigider::afisare (  
    std::ostream & dev ) const    [override], [virtual]
```

Implements [Electrocasnic](#).

4.8.1.2 cloneaza()

```
unique_ptr< Electrocasnic > Frigider::cloneaza ( ) const [override], [virtual]
```

Implements [Electrocasnic](#).

The documentation for this class was generated from the following files:

- Frigider.h
- Frigider.cpp

4.9 MasinaDeSpalat Class Reference

Inheritance diagram for MasinaDeSpalat:

Collaboration diagram for MasinaDeSpalat:

Public Member Functions

- **MasinaDeSpalat** (const std::string &, const std::string &, int, double, double)
- double **getCapacitate** () const
- void **afisare** (std::ostream &) const override
- std::unique_ptr< [Electrocasnic](#) > **cloneaza** () const override

Public Member Functions inherited from [Electrocasnic](#)

- **Electrocasnic** (const std::string &, const std::string &, const std::string &, int, double)
- std::string **getTip** () const
- std::string **getMarca** () const
- std::string **getModel** () const
- int **getAnFabricatie** () const
- double **getPretCatalog** () const
- int **getVechime** () const
- bool **operator==** (const [Electrocasnic](#) &altul) const

Additional Inherited Members

Protected Attributes inherited from [Electrocasnic](#)

- std::string **tip**
- std::string **marca**
- std::string **model**
- int **anFabricatie**
- double **pretCatalog**

4.9.1 Member Function Documentation

4.9.1.1 afisare()

```
void MasinaDeSpalat::afisare (
    std::ostream & ) const [override], [virtual]
```

Implements [Electrocasnic](#).

4.9.1.2 cloneaza()

```
unique_ptr< Electrocasnic > MasinaDeSpalat::cloneaza ( ) const [override], [virtual]
```

Implements [Electrocasnic](#).

The documentation for this class was generated from the following files:

- MasinaDeSpalat.h
- MasinaDeSpalat.cpp

4.10 Receptioner Class Reference

Inheritance diagram for Receptioner:

Collaboration diagram for Receptioner:

Public Member Functions

- **Receptioner** (const std::string &, const std::string &, const std::string &, const [Data](#) &, const std::string &)
- void **adaugaCerere** (int)
- const std::vector< int > & **getCereri** () const
- double **calculeazaSalariu** () const override
- void **afisare** (std::ostream &) const override
- std::string **getTipAngajat** () const override

Public Member Functions inherited from [Angajat](#)

- **Angajat** (const std::string &, const std::string &, const std::string &, const [Data](#) &, const std::string &)
- int **getId** () const
- std::string **getNum** () const
- std::string **getPrenume** () const
- std::string **getCNP** () const
- [Data](#) **getDataAngajarii** () const
- std::string **getOrasDomiciliu** () const
- void **setNum** (const std::string &)
- void **setPrenume** (const std::string &)
- void **validareNum** (const std::string &, const std::string &) const
- double **calculeazaBonusFidelitate** () const
- bool **primestePrimaTransport** () const

Additional Inherited Members

Protected Attributes inherited from [Angajat](#)

- const int **id**
- std::string **nume**
- std::string **prenume**
- std::string **cnp**
- [Data](#) **dataAngajarii**
- std::string **orasDomiciliu**

Static Protected Attributes inherited from [Angajat](#)

- static int **nextID** =1000
- static constexpr double **SALARIU_BAZA** =4000.0
- static constexpr double **BONUS_DE_FIDELITARE_PROCENT** =5.0
- static constexpr int **ANI_FIDELITATE** =3
- static constexpr double **PRIMA_TRANS** =400.0

4.10.1 Member Function Documentation

4.10.1.1 afisare()

```
void Receptioner::afisare (
    std::ostream & ) const [override], [virtual]
```

Reimplemented from [Angajat](#).

4.10.1.2 calculeazaSalariu()

```
double Receptioner::calculeazaSalariu ( ) const [override], [virtual]
```

Implements [Angajat](#).

4.10.1.3 getTipAngajat()

```
string Receptioner::getTipAngajat ( ) const [override], [virtual]
```

Implements [Angajat](#).

The documentation for this class was generated from the following files:

- Receptioner.h
- Receptioner.cpp

4.11 ServiceManager Class Reference

Public Member Functions

- **ServiceManager** (const [ServiceManager](#) &)=delete
- **ServiceManager** & **operator=** (const [ServiceManager](#) &)=delete
- bool **arePersonalMinim** () const
- int **getNumarTehnicieni** () const
- int **getNumarReceptioneri** () const
- int **getNumarSupervizori** () const
- void **adaugaAngajat** (std::unique_ptr< [Angajat](#) > angajat)
- bool **stergeAngajat** (const std::string &cnp)
- bool **modificaNumeAngajat** (const std::string &cnp, const std::string &numeNou, const std::string &prenumeNou)
- [Angajat](#) * **cautaAngajatDupaCNP** (const std::string &cnp)
- [Angajat](#) * **cautaAngajatDupaID** (int id)
- void **afiseazaAngajat** (const std::string &cnp) const
- void **afiseazaTotiAngajatii** () const
- void **incarcaAngajatiDinCSV** (const std::string &numeFisier)
- void **adaugaModelInCatalog** (std::unique_ptr< [Electrocasnic](#) > electrocasnic)
- bool **stergeModelDinCatalog** (const std::string &tip, const std::string &marca, const std::string &model)
- bool **poateFiReparat** (const std::string &tip, const std::string &marca, const std::string &model) const
- const [Electrocasnic](#) * **getDetaliiModel** (const std::string &tip, const std::string &marca, const std::string &model) const
- void **afiseazaCatalogComplet** () const
- void **afiseazaAparateNereparabile** () const
- void **incarcaCatalogDinCSV** (const std::string &numeFisier)
- void **primesteCerere** (std::unique_ptr< [CerereReparatie](#) > cerere)
- void **incarcaCereriDinCSV** (const std::string &numeFisier)
- bool **esteCerereValida** (const [CerereReparatie](#) &cerere)
- [Tehnician](#) * **gasesteTehnicianPotrivit** (const [CerereReparatie](#) &cerere)
- void **alocaCerere** ([CerereReparatie](#) *cerere, [Tehnician](#) *tehnician)
- void **procesareCereriInAsteptare** ()
- void **startSimulare** ()
- void **executeazaTic** ()
- void **afiseazaStatusTic** () const
- void **stopSimulare** ()
- void **finalizeazaCerere** ([CerereReparatie](#) *cerere)
- void **genereazaRaportTop3Salarii** (const std::string &numeFisier) const
- void **genereazaRaportCeaMaiLungaReparatie** (const std::string &numeFisier) const
- void **genereazaRaportCereriInAsteptare** (const std::string &numeFisier) const
- void **afiseazaStatistici** () const
- void **reset** ()

Static Public Member Functions

- static [ServiceManager](#) * **getInstance** ()
- static void **deleteInstance** ()

The documentation for this class was generated from the following files:

- ServiceManager.h
- ServiceManager.cpp

4.12 Supervisor Class Reference

Inheritance diagram for Supervisor:

Collaboration diagram for Supervisor:

Public Member Functions

- **Supervisor** (const std::string &, const std::string &, const std::string &, const [Data](#) &, const std::string &)
- double [calculeazaSalariu](#) () const override
- void [afisare](#) (std::ostream &) const override
- std::string [getTipAngajat](#) () const override

Public Member Functions inherited from [Angajat](#)

- **Angajat** (const std::string &, const std::string &, const std::string &, const [Data](#) &, const std::string &)
- int [getId](#) () const
- std::string [getNum](#) () const
- std::string [getPrenume](#) () const
- std::string [getCNP](#) () const
- [Data](#) [getDataAngajarii](#) () const
- std::string [getOrasDomiciliu](#) () const
- void [setNum](#) (const std::string &)
- void [setPrenume](#) (const std::string &)
- void [validareNum](#) (const std::string &, const std::string &) const
- double [calculeazaBonusFidelitate](#) () const
- bool [primestePrimaTransport](#) () const

Additional Inherited Members

Protected Attributes inherited from [Angajat](#)

- const int [id](#)
- std::string [nume](#)
- std::string [prenume](#)
- std::string [cnp](#)
- [Data](#) [dataAngajarii](#)
- std::string [orasDomiciliu](#)

Static Protected Attributes inherited from [Angajat](#)

- static int [nextID](#) =1000
- static constexpr double [SALARIU_BAZA](#) =4000.0
- static constexpr double [BONUS_DE_FIDELITARE_PROCENT](#) =5.0
- static constexpr int [ANI_FIDELITATE](#) =3
- static constexpr double [PRIMA_TRANS](#) =400.0

4.12.1 Member Function Documentation

4.12.1.1 afisare()

```
void Supervizor::afisare (
    std::ostream & ) const [override], [virtual]
```

Reimplemented from [Angajat](#).

4.12.1.2 calculeazaSalariu()

```
double Supervizor::calculeazaSalariu ( ) const [override], [virtual]
```

Implements [Angajat](#).

4.12.1.3 getTipAngajat()

```
string Supervizor::getTipAngajat ( ) const [override], [virtual]
```

Implements [Angajat](#).

The documentation for this class was generated from the following files:

- Supervizor.h
- Supervizor.cpp

4.13 Tehnician Class Reference

Inheritance diagram for Tehnician:

Collaboration diagram for Tehnician:

Public Member Functions

- **Tehnician** (const std::string &_nume, const std::string &_prenume, const std::string &_cnp, const [Data](#) &↔ dataAngajarii, const std::string &_orasDomiciliu)
- void **adaugaSpecializare** (const std::string &tip, const std::string &marca)
- bool **areSpecializare** (const std::string &tip, const std::string &marca) const
- bool **poatePrimiCerere** () const
- void **adaugaIdCerereActiva** (int id)
- void **finalizareCerere** (int idCerere, double valoareaReparatie, int durataEfectiva)
- double **getDurataTotalaLucrata** () const
- int **getNrCereriActive** () const
- double **calculeazaSalariu** () const override
- void **afisare** (std::ostream &) const override
- std::string **getTipAngajat** () const override

Public Member Functions inherited from [Angajat](#)

- **Angajat** (const std::string &, const std::string &, const std::string &, const [Data](#) &, const std::string &)
- int **getId** () const
- std::string **getNum** () const
- std::string **getPrenume** () const
- std::string **getCNP** () const
- [Data](#) **getDataAngajarii** () const
- std::string **getOrasDomiciliu** () const
- void **setNum** (const std::string &)
- void **setPrenume** (const std::string &)
- void **validareNum** (const std::string &, const std::string &) const
- double **calculeazaBonusFidelitate** () const
- bool **primestePrimaTransport** () const

Additional Inherited Members

Protected Attributes inherited from [Angajat](#)

- const int **id**
- std::string **nume**
- std::string **prenume**
- std::string **cnp**
- [Data](#) **dataAngajarii**
- std::string **orasDomiciliu**

Static Protected Attributes inherited from [Angajat](#)

- static int **nextID** =1000
- static constexpr double **SALARIU_BAZA** =4000.0
- static constexpr double **BONUS_DE_FIDELITARE_PROCENT** =5.0
- static constexpr int **ANI_FIDELITATE** =3
- static constexpr double **PRIMA_TRANS** =400.0

4.13.1 Member Function Documentation

4.13.1.1 afisare()

```
void Tehnician::afisare (
    std::ostream & ) const [override], [virtual]
```

Reimplemented from [Angajat](#).

4.13.1.2 calculeazaSalariu()

```
double Tehnician::calculeazaSalariu ( ) const [override], [virtual]
```

Implements [Angajat](#).

4.13.1.3 `getTipAngajat()`

```
string Tehnician::getTipAngajat ( ) const [override], [virtual]
```

Implements [Angajat](#).

The documentation for this class was generated from the following files:

- Tehnician.h
- Tehnician.cpp

4.14 TV Class Reference

Inheritance diagram for TV:

Collaboration diagram for TV:

Public Member Functions

- **TV** (const std::string &, const std::string &, int, double, double, bool)
- double **getDiagonala** () const
- bool **getEstelnCm** () const
- void **afisare** (std::ostream &) const override
- std::unique_ptr< [Electrocasnic](#) > **cloneaza** () const override

Public Member Functions inherited from [Electrocasnic](#)

- **Electrocasnic** (const std::string &, const std::string &, const std::string &, int, double)
- std::string **getTip** () const
- std::string **getMarca** () const
- std::string **getModel** () const
- int **getAnFabricatie** () const
- double **getPretCatalog** () const
- int **getVechime** () const
- bool **operator==** (const [Electrocasnic](#) &altul) const

Additional Inherited Members

Protected Attributes inherited from [Electrocasnic](#)

- std::string **tip**
- std::string **marca**
- std::string **model**
- int **anFabricatie**
- double **pretCatalog**

4.14.1 Member Function Documentation

4.14.1.1 afisare()

```
void TV::afisare (
    std::ostream & ) const [override], [virtual]
```

Implements [Electrocasnic](#).

4.14.1.2 cloneaza()

```
unique_ptr< Electrocasnic > TV::cloneaza ( ) const [override], [virtual]
```

Implements [Electrocasnic](#).

The documentation for this class was generated from the following files:

- TV.h
- TV.cpp

Chapter 5

File Documentation

5.1 Angajat.h

```
00001 #pragma once
00002 #include <string>
00003 #include <iostream>
00004 #include "Data.h"
00005
00006 class Angajat{
00007
00008 protected:
00009
00010     //TODO : gandeste te la o denumire mai buna pentru id urile de la angajat si cerere
00011     static int nextID;
00012     const int id;
00013     std::string nume, prenume, cnp;
00014     Data dataAngajarii;
00015     std::string orasDomiciliu;
00016
00017     static constexpr double SALARIU_BAZA=4000.0;
00018     static constexpr double BONUS_DE_FIDELITARE_PROCENT=5.0;
00019     static constexpr int ANI_FIDELITATE=3;
00020     static constexpr double PRIMA_TRANS=400.0;
00021
00022 public:
00023
00024     Angajat():id(0){}
00025     Angajat(const std::string&, const std::string&, const std::string&, const Data&, const
std::string& );
00026
00027     virtual ~Angajat()=default;
00028
00029
00030     // getteri
00031
00032     int getId() const;
00033     std::string getNume() const;
00034     std::string getPrenume() const;
00035     std::string getCNP() const;
00036     Data getDataAngajarii() const;
00037     std::string getOrasDomiciliu() const;
00038
00039
00040     //setteri
00041
00042     void setNume(const std::string&);
00043     void setPrenume(const std::string& );
00044
00045
00046     //validare
00047
00048     void validareNume(const std::string&, const std::string&) const;
00049
00050
00051     //calcul salariu-- VIRTUAL PURE
00052     virtual double calculeazaSalariu() const=0;
00053     virtual void afisare(std::ostream&) const;
00054
00055     //tip angajat-- VIRTUAL PURE
00056     virtual std::string getTipAngajat() const=0;
00057
```

```

00058     // auxiliare
00059     double calculeazaBonusFidelitate() const;
00060     bool primestePrimaTransport() const;
00061
00062 };

```

5.2 AngajatFactory.h

```

00001 #pragma once
00002 #include <string>
00003 #include <memory>
00004 #include <vector>
00005 #include <map>
00006 #include <set>
00007 #include <iostream>
00008
00009 #include "Angajat.h"
00010 #include "Data.h"
00011
00012 class AngajatFactory {
00013 public:
00014
00015     static std::unique_ptr<Angajat> creeazaAngajat(const std::string& tip, const std::string&
nume,const std::string& prenume,const std::string& cnp,const Data& dataAngajarii, const std::string&
orasDomiciliu,const std::map<std::string, std::set<std::string>& specializari = {});
00016
00017     static std::unique_ptr<Angajat> creeazaDinCSV(const std::string& linie);
00018
00019 private:
00020
00021     static std::vector<std::string> splitLine(const std::string& linie, char delimitator);
00022     static std::map<std::string, std::set<std::string>> parseazaSpecializari(const std::string& text);
00023 };

```

5.3 CerereReparatie.h

```

00001 #pragma once
00002 #include "Electrocasnic.h"
00003 #include "Tehnician.h"
00004 #include <string>
00005 #include <iostream>
00006 #include <memory>
00007 #include <ctime>
00008
00009 enum class StareCerere{
00010
00011     IN_ASTEPTARE,
00012     REPARTIZATA,
00013     IN_LUCRU,
00014     FINALIZATA,
00015     INVALIDA
00016 };
00017
00018
00019 class CerereReparatie {
00020     //TODO la fel! alta denumire pentru id uri!!
00021     static int nextID;
00022     int id;
00023     std::unique_ptr<Electrocasnic> aparat;
00024     time_t timestamp;
00025     int nivelComplexitate; // 0-5 (0- nu se poate repara! REMAT!!)
00026     int durataEstimata;
00027     int durataRamasa;
00028     double pretReparatie;
00029     StareCerere stare;
00030     int idTehnician; // -1 daca e nerepartizata
00031
00032 public:
00033     CerereReparatie()=default;
00034     CerereReparatie(std::unique_ptr<Electrocasnic> _aparat, const time_t _timestamp, int
_nivelComplexitate);
00035
00036
00037     // constructor de copiere si operatorul egal pentru unique_ptr ????????
00038
00039     CerereReparatie(const CerereReparatie&);
00040     CerereReparatie& operator=(const CerereReparatie& );
00041
00042     //getteri

```

```

00043         int getId() const;
00044         int getNivelComplexitate() const;
00045         const Electrocasnic* getAparat() const;
00046         time_t getTimeStamp() const;
00047         int getDurataEstimata() const;
00048         int getDurataRamasa() const;
00049         double getPretReparatie() const;
00050         StareCerere getStare() const;
00051         int getIdTehnician() const;
00052
00053
00054         // setters
00055
00056         void setStare(const StareCerere);
00057         void setIdTehnician(int);
00058
00059
00060         // Procesare
00061
00062         void proceseaza(); // reduce durata ramasa
00063         bool esteFinalizata() const;
00064         bool esteValida() const;
00065
00066         void afisare(std::ostream&) const;
00067         std::string getTimeStampString() const;
00068
00069
00070
00071         //Comparare pentru sortare???
00072         bool operator<(const CerereReparatie& ) const;
00073
00074     };
00075

```

5.4 CNPValidator.h

```

00001 #pragma once
00002 #include "Data.h"
00003 #include <string>
00004
00005 class CNPValidator {
00006 public:
00007     static bool esteValid(const std::string& cnp);
00008     static Data getDataNasterii(const std::string& cnp);
00009     static char getSex(const std::string& cnp);
00010
00011 private:
00012
00013     static bool verificaCifreControl(const std::string& cnp);
00014     static bool verificaData(int an, int luna, int zi);
00015
00016     CNPValidator() = delete;
00017 };

```

5.5 Data.h

```

00001 #pragma once
00002 #include <iostream>
00003 #include <string>
00004 #include <ostream>
00005 #include <istream>
00006
00007 class Data {
00008     int zi, luna, an;
00009
00010 public:
00011     Data()=default;
00012     Data(int, int, int);
00013     Data(const std::string& ); // "DD.MM.YYYY"
00014
00015     // VALIDARI
00016     bool esteValida() const;
00017
00018
00019     //getteri
00020     int getVarsta() const;
00021     int getZi() const;
00022     int getLuna() const;
00023     int getAn() const;

```

```

00024
00025     //operatori
00026     bool operator<(const Data&);
00027     bool operator>(const Data&);
00028     bool operator==(const Data&);
00029     friend std::ostream& operator<<(std::ostream&, const Data&);
00030
00031     //static
00032     static Data dataCurenta();
00033
00034     // string toString() const
00035
00036
00037
00038 };

```

5.6 Electrocasnic.h

```

00001 #pragma once
00002 #include <string>
00003 #include <memory>
00004 #include "Data.h"
00005
00006 class Electrocasnic {
00007 protected:
00008     std::string tip, marca, model;
00009     int anFabricatie;
00010     double pretCatalog;
00011
00012 public:
00013     Electrocasnic() = default;
00014     Electrocasnic(const std::string&, const std::string&, const std::string&, int, double);
00015
00016     virtual ~Electrocasnic() = default;
00017
00018     // getteri
00019     std::string getTip() const;
00020     std::string getMarca() const;
00021     std::string getModel() const;
00022     int getAnFabricatie() const;
00023     double getPretCatalog() const;
00024
00025     int getVechime() const;
00026
00027     virtual void afisare(std::ostream&) const = 0;
00028     virtual std::unique_ptr<Electrocasnic> cloneaza() const = 0;
00029
00030     bool operator==(const Electrocasnic& altul) const;
00031
00032 };

```

5.7 ElectrocasnicFactory.h

```

00001 #pragma once
00002 #include <string>
00003 #include <memory>
00004 #include <map>
00005 #include <vector>
00006
00007 #include "Electrocasnic.h"
00008
00009 class ElectrocasnicFactory {
00010 public:
00011
00012     static std::unique_ptr<Electrocasnic> creeazaElectrocasnic(const std::string& tip, const
std::string& marca, const std::string& model, int anFabricatie, double pretCatalog, const
std::map<std::string, std::string>& dateSpecifice);
00013
00014     static std::map<std::string, std::string> parseazaDateSpecifice(const std::string& linie);
00015 };

```

5.8 Frigider.h

```

00001 #include "Electrocasnic.h"
00002 #include <string>

```

```

00003 #include <memory>
00004
00005
00006 class Frigider: public Electrocasnic{
00007
00008     bool areCongelator;
00009
00010 public:
00011     Frigider()=default;
00012     Frigider(const std::string&, const std::string&, int, double, bool);
00013     bool getAreCongelator() const;
00014     void afisare(std::ostream &) const override;
00015     std::unique_ptr<Electrocasnic> cloneaza() const override;
00016
00017 };

```

5.9 MasinaDeSpalat.h

```

00001 #pragma once
00002 #include "Electrocasnic.h"
00003
00004 #include <string>
00005 #include <memory>
00006
00007 class MasinaDeSpalat: public Electrocasnic {
00008
00009     double capacitate; // in kg
00010
00011 public:
00012     MasinaDeSpalat()=default;
00013     MasinaDeSpalat(const std::string& , const std::string&, int,double,double );
00014     double getCapacitate() const;
00015     void afisare(std::ostream&) const override;
00016     std::unique_ptr<Electrocasnic> cloneaza() const override;
00017
00018 };

```

5.10 Receptioner.h

```

00001 #pragma once
00002
00003 #include "Angajat.h"
00004 #include <string>
00005 #include <vector>
00006
00007 class Receptioner: public Angajat{
00008
00009     std::vector<int> idCereriInregistrate;
00010
00011 public:
00012     Receptioner()=default;
00013     Receptioner(const std::string&, const std::string&, const std::string&, const Data& ,const
std::string&);
00014     void adaugaCerere(int );
00015     const std::vector<int>& getCereri() const;
00016     double calculeazaSalariu() const override;
00017     void afisare(std::ostream&) const override;
00018     std::string getTipAngajat() const override;
00019
00020 };

```

5.11 ServiceManager.h

```

00001 #pragma once
00002 #include <vector>
00003 #include <map>
00004 #include <set>
00005 #include <queue>
00006 #include <memory>
00007 #include <string>
00008 #include <fstream>
00009 #include <algorithm>
00010
00011 #include "Angajat.h"
00012 #include "Receptioner.h"

```

```

00013 #include "Tehnician.h"
00014 #include "Supervizor.h"
00015 #include "Electrocasnic.h"
00016 #include "CerereReparatie.h"
00017 #include "AngajatFactory.h"
00018 #include "ElectrocasnicFactory.h"
00019
00020 class ServiceManager {
00021 private:
00022     // Singleton instance
00023     static ServiceManager* instance;
00024
00025     // Constructor privat pentru Singleton
00026     ServiceManager();
00027
00028     // Colecții principale
00029     std::vector<std::unique_ptr<Angajat> angajati;
00030
00031     // Catalog: map<tip, map<marca, map<model, unique_ptr<Electrocasnic>>>
00032     std::map<std::string, std::map<std::string, std::map<std::string, std::unique_ptr<Electrocasnic>>>
        catalogElectrocasnice;
00033
00034     // Cereri
00035     std::vector<std::unique_ptr<CerereReparatie> toateCereri; // toate cererile primite
00036     std::vector<CerereReparatie> cereriActive; // pointeri la cereri in lucru
00037     std::queue<CerereReparatie> cereriInAsteptare;
00038     std::vector<CerereReparatie> cereriFinalizate;
00039
00040     // Pentru statistici
00041     std::map<std::string, int> aparateNereparabile; // "tip_marca_model" -> nr_aparitii
00042
00043     // Simulare
00044     int timpCurent;
00045     bool esteInSimulare;
00046
00047 public:
00048     // Singleton
00049     static ServiceManager* getInstance();
00050     static void deleteInstance();
00051
00052     // Interzice copierea
00053     ServiceManager(const ServiceManager&) = delete;
00054     ServiceManager& operator=(const ServiceManager&) = delete;
00055
00056     ~ServiceManager();
00057
00058     // === GESTIUNE ANGAJAȚI ===
00059
00060     // Verificări
00061     bool arePersonalMinim() const;
00062     int getNumarTehnicienii() const;
00063     int getNumarReceptioneri() const;
00064     int getNumarSupervizori() const;
00065
00066     // CRUD
00067     void adaugaAngajat(std::unique_ptr<Angajat> angajat);
00068     bool stergeAngajat(const std::string& cnp);
00069     bool modificaNumeAngajat(const std::string& cnp, const std::string& numeNou, const std::string&
        prenumeNou);
00070     Angajat* cautaAngajatDupaCNP(const std::string& cnp);
00071     Angajat* cautaAngajatDupaID(int id);
00072
00073     // Afișare
00074     void afiseazaAngajat(const std::string& cnp) const;
00075     void afiseazaTotiAngajatii() const;
00076
00077     // Încărcare din fișier
00078     void incarcaAngajatiDinCSV(const std::string& numeFisier);
00079
00080     // === GESTIUNE ELECTROCASNICE ===
00081
00082     // CRUD Catalog
00083     void adaugaModelInCatalog(std::unique_ptr<Electrocasnic> electrocasnic);
00084     bool stergeModelDinCatalog(const std::string& tip, const std::string& marca, const std::string&
        model);
00085
00086     // Verificări
00087     bool poateFiReparat(const std::string& tip, const std::string& marca, const std::string& model)
        const;
00088     const Electrocasnic* getDetaliiModel(const std::string& tip, const std::string& marca, const
        std::string& model) const;
00089
00090     // Afișare
00091     void afiseazaCatalogComplet() const;
00092     void afiseazaAparateNereparabile() const;
00093
00094     // Încărcare

```

```

00095     void incarcaCatalogDinCSV(const std::string& numeFisier);
00096
00097     // === GESTIUNE CERERI ===
00098
00099     // Primire cereri
00100     void primesteCerere(std::unique_ptr<CerereReparatie> cerere);
00101     void incarcaCereriDinCSV(const std::string& numeFisier);
00102
00103     // Verificare validitate
00104     bool esteCerereValida(const CerereReparatie& cerere);
00105
00106     // === SIMULARE ===
00107
00108     // Alocare automată
00109     Tehnician* gasesteTehnicianPotrivit(const CerereReparatie& cerere);
00110     void alocaCerere(CerereReparatie* cerere, Tehnician* tehnician);
00111     void procesareCereriInAsteptare();
00112
00113     // Simulare în timp real
00114     void startSimulare();
00115     void executeazaTic();
00116     void afiseazaStatusTic() const;
00117     void stopSimulare();
00118
00119     // Finalizare cereri
00120     void finalizeazaCerere(CerereReparatie* cerere);
00121
00122     // === RAPORTĂRI ===
00123
00124     void genereazaRaportTop3Salarii(const std::string& numeFisier) const;
00125     void genereazaRaportCeaMaiLungaReparatie(const std::string& numeFisier) const;
00126     void genereazaRaportCereriInAsteptare(const std::string& numeFisier) const;
00127
00128     // === UTILITĂȚI ===
00129
00130     void afiseazaStatistici() const;
00131     void reset(); // pentru testare
00132 };

```

5.12 Supervizor.h

```

00001 #pragma once
00002
00003 #include "Angajat.h"
00004 #include <string>
00005 #include <vector>
00006
00007
00008 class Supervizor: public Angajat{
00009
00010     static constexpr double SPOR_CONDUCERE_PROCENT=20.0;
00011
00012     public:
00013
00014         Supervizor()=default;
00015         Supervizor(const std::string&, const std::string&, const std::string&, const Data&, const
std::string&);
00016         double calculeazaSalariu() const override;
00017         void afisare(std::ostream& ) const override;
00018         std::string getTipAngajat() const override;
00019
00020
00021
00022
00023
00024
00025 };

```

5.13 Tehnician.h

```

00001 #pragma once
00002 #include "Angajat.h"
00003 #include <map>
00004 #include <set>
00005 #include <vector>
00006
00007 class Tehnician : public Angajat {
00008
00009     std::map<std::string, std::set<std::string> specializari;

```

```

00010
00011     std::vector<int> idCereriActive;
00012     double valoareaTotalaReparatii;
00013     double durataTotalaLucrata;
00014
00015     static constexpr double BONUS_REPARATII_PROCENT = 2.0;
00016     static constexpr int MAX_CERERI_ACTIVE = 3;
00017
00018 public:
00019     Tehnician() = default;
00020     Tehnician(const std::string& _nume, const std::string& _prenume, const std::string& _cnp,
00021               const Data& _dataAngajarii, const std::string& _orasDomiciliu);
00022
00023     // Specializari
00024     void adaugaSpecializare(const std::string& tip, const std::string& marca);
00025     bool areSpecializare(const std::string& tip, const std::string& marca) const;
00026
00027     // Gestiune Cereri Active
00028     bool poatePrimiCerere() const;
00029     void adaugaIdCerereActiva(int id);
00030     void finalizareCerere(int idCerere, double valoareReparatie, int durataEfectiva);
00031
00032     // Getteri pentru alocare automata
00033     double getDurataTotalaLucrata() const;
00034     int getNrCereriActive() const;
00035
00036     // Salariu si Afisare
00037     double calculeazaSalariu() const override;
00038     void afisare(std::ostream& ) const override;
00039     std::string getTipAngajat() const override;
00040 };

```

5.14 TV.h

```

00001 #pragma once
00002 #include "Electrocasnic.h"
00003
00004 #include <string>
00005 #include <memory>
00006 #include <iostream>
00007
00008 class TV: public Electrocasnic{
00009
00010     double diagonala;
00011     bool esteInCm; // true=cm si false=inciit
00012
00013 public:
00014     TV()=default;
00015     TV(const std::string&, const std::string&,int,double,double,bool);
00016
00017     double getDiagonala() const;
00018     bool getEsteInCm() const;
00019     void afisare(std::ostream&) const override;
00020
00021     std::unique_ptr<Electrocasnic> cloneaza() const override;
00022
00023 };

```

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