Voting System

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Chapter 1

Bug List

File CPLProcessing.cpp

No known bugs.

File CPLProcessing.h

No known bugs.

File CPLVoteBallot.cpp

No known bugs.

File CPLVoteSystem.cpp

No known bugs.

File CPLVoteSystem.h

No known bugs.

Chapter 2

Hierarchical Index

2.1 Class Hierarchy

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

Chapter 3

Class Index

3.1 Class List

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

Chapter 4

File Index

4.1 File List

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

Chapter 5

Class Documentation

5.1 AuditFile Class Reference

The AuditFile class represents a file that logs information about a voting audit.

`#include <AuditFile.h>`

Public Member Functions

- AuditFile ()
  Default constructor for the AuditFile class.
- AuditFile (string output_result)
  Constructor for the AuditFile class that takes a file name as an argument.
- void **open** ()
- void **close** ()
- void labelFile (string name)
  A function to label a file with a specific name.
- void produceFile ()
  A function to create a new file.
- void write (string output_result, bool newLine=true)
  A function to write the output into the file.
- FILE * getFile () const
  Getter function for the file.
- void setFile (FILE *file_)
  Setter function for the file.
- string outputResult () const
  Getter function for the ouput.
- void setOutputResult (const string &outputResult)
  Setter function for the output.

Protected Attributes

- FILE * **file**
- ofstream **fileStream**
- string **output_result**
- string **name**
- string **fileName**

5.1.1 Detailed Description

The AuditFile class represents a file that logs information about a voting audit.

5.1.2 Constructor & Destructor Documentation

5.1.2.1 AuditFile()

```
AuditFile::AuditFile (
            string output_result )
```

Constructor for the AuditFile class that takes a file name as an argument.

Parameters

output_result	is the parameter

5.1.3 Member Function Documentation

5.1.3.1 getFile()

```
FILE* AuditFile::getFile ( ) const  [inline]
```

Getter function for the file.

5.1.3.2 labelFile()

```
void AuditFile::labelFile (
            string name )
```

A function to label a file with a specific name.

Parameters

name	The name of the file to be labeled

5.1.3.3 setFile()

```
void AuditFile::setFile (
            FILE * file_ )  [inline]
```

Setter function for the file.

Parameters

output_result	The output to be written to the file

5.1.3.4 setOutputResult()

```
void AuditFile::setOutputResult (
            const string & outputResult )  [inline]
```

Setter function for the output.

Parameters

outputResult	The output to be set.

5.1.3.5 write()

```
void AuditFile::write (
            string output_result,
            bool newLine = true )
```

A function to write the output into the file.

Parameters

output_result	The output to be written to the file

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

- src/include/AuditFile.h
- src/AuditFile.cpp

5.2 Ballot Class Reference

A Ballot class to hold an individual ballot found in a Instant Runoff election. Each IR Candidate will hold a list of this Ballot.

```
#include <Ballot.h>
```

Public Member Functions

- Ballot (int rank, vector< int > mapping)

  Construct a new Ballot object.
- Ballot ()

  Construct a new Ballot object.
- void increaseRank ()

  Is used to increase the ranking variable.
- int getIndex ()

  Get the index of ranking in the map.
- int getRank ()

  Get the ranking.
- void setRank (int rank_)

  Set the ranking. Error checks if the ranking goes below 0 and if the ranking is beyond the size of the mapping.
- vector< int > getMapping ()

  Get the mapping.
- void setMapping (vector< int > &mapping)

  Set the mapping.

5.2.1 Detailed Description

A Ballot class to hold an individual ballot found in a Instant Runoff election. Each IR Candidate will hold a list of this Ballot.

5.2.2 Constructor & Destructor Documentation

5.2.2.1 Ballot() [1/2]

```
Ballot::Ballot (
            int rank,
            vector< int > mapping )
```

Construct a new Ballot object.

Parameters

rank	int the current preference (rank).
mapping	vector<int> the mapping of preferences to candidates.

5.2.2.2 Ballot() [2/2]

```
Ballot::Ballot ( )
```

Construct a new Ballot object.

5.2.3 Member Function Documentation

5.2.3.1 getIndex()

```
int Ballot::getIndex ( )
```

Get the index of ranking in the map.

Returns

int

5.2.3.2 getMapping()

```
vector<int> Ballot::getMapping ( )  [inline]
```

Get the mapping.

Returns

vector<int>

5.2.3.3 getRank()

```
int Ballot::getRank ( )  [inline]
```

Get the ranking.

Returns

int

5.2.3.4 setMapping()

```
void Ballot::setMapping (
            vector< int > & mapping )  [inline]
```

Set the mapping.

Parameters

mapping	

5.2.3.5 setRank()

```
void Ballot::setRank (
            int rank_ )  [inline]
```

Set the ranking. Error checks if the ranking goes below 0 and if the ranking is beyond the size of the mapping.

Parameters

*rank_*	int

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

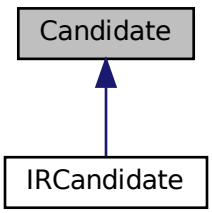
- src/include/Ballot.h
- src/Ballot.cpp

5.3 Candidate Class Reference

An output class from the IBallotProcessing interface. This class holds objects/information for an election Candidate including their name and party. These attributes will then be displayed when a candidate wins eiher an IR or CPL election.

```
#include <Candidate.h>
```

Inheritance diagram for Candidate:



Public Member Functions

- **Candidate** (string name, string party)
- string **getName** ()
- void **setName** (string name_)
- string **getParty** ()
- void **setParty** (string party_)

Protected Attributes

- string **name**
- string **party**

5.3.1 Detailed Description

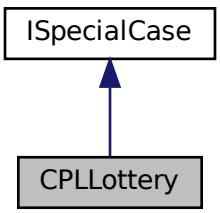
An output class from the IBallotProcessing interface. This class holds objects/information for an election Candidate including their name and party. These attributes will then be displayed when a candidate wins eiher an IR or CPL election.

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

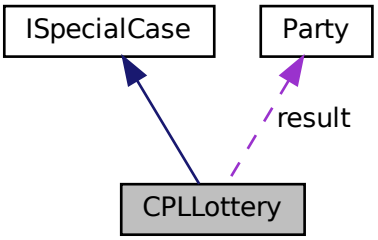
- src/include/Candidate.h
- src/Candidate.cpp

5.4 CPLLottery Class Reference

Inheritance diagram for CPLLottery:



Collaboration diagram for CPLLottery:



Public Member Functions

- **CPLLottery** (Party[ ] parties)
- string **result1000** () const
- void **setResult1000** (const string &result1000)

Protected Attributes

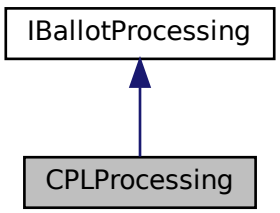
- Party **result**
- std::vector< Party > **parties**
- string **result_1000**

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

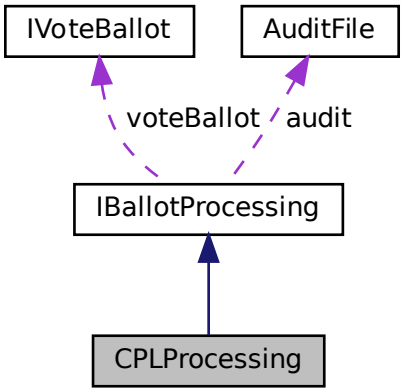
- src/include/ICPLLottery.h

5.5 CPLProcessing Class Reference

Inheritance diagram for CPLProcessing:



Collaboration diagram for CPLProcessing:



Public Member Functions

- CPLProcessing (FILE *file_)

  Create a new CPLProcessing with an input file CPL election.
- CPLVoteBallot * output ()

  Output a CPLVoteBallot that contains all ballot information.
- bool read ()

  Start to read files/.
- bool setUp ()

  Parse files and save ballot infomration/.

Additional Inherited Members

5.5.1 Constructor & Destructor Documentation

5.5.1.1 CPLProcessing()

```
CPLProcessing::CPLProcessing (
            FILE * file_ )
```

Create a new CPLProcessing with an input file CPL election.

Parameters

*file_*	CPL ballot file

Returns

void

5.5.2 Member Function Documentation

5.5.2.1 output()

```
CPLVoteBallot * CPLProcessing::output ( )  [virtual]
```

Output a CPLVoteBallot that contains all ballot information.

Parameters

no	parameter

Returns

CPLVoteBallot∗

Implements IBallotProcessing.

5.5.2.2 read()

```
bool CPLProcessing::read ( )  [inline], [virtual]
```

Start to read files/.

Parameters

no	parameter

Returns

bool

Implements IBallotProcessing.

5.5.2.3 setUp()

```
bool CPLProcessing::setUp ( )  [virtual]
```

Parse files and save ballot infomration/.

Parameters

no	parameter

Returns

bool

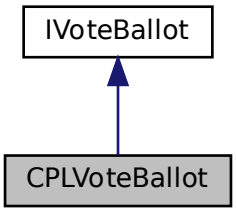
Implements IBallotProcessing.

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

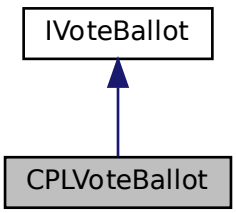
- src/include/CPLProcessing.h
- src/CPLProcessing.cpp

5.6 CPLVoteBallot Class Reference

Inheritance diagram for CPLVoteBallot:



Collaboration diagram for CPLVoteBallot:



Public Member Functions

- CPLVoteBallot (std::vector< Party * > parties, std::vector< int > mapBallot, std::vector< int > mapAllocated, std::vector< int > mapRemain, int numSeats, int parttNum, int quotaNum)

  Create a new CPLVoteBallot.
- std::vector< Party * > getParties () const

  Get list of parties that participate election.
- void setParties (const std::vector< Party * > &parties_)

  Set a list of parties that participate election.
- std::vector< int > getMapAllocatedSeat () const

  Get the map of allocated seat.
- void setMapAllocatedSeat (const std::vector< int > &mapAllocatedSeat_)

  Get the map of allocated seat.
- std::vector< int > getMapRemainSeat () const

  Get the map of remaining seats.
- void setMapRemainSeat (const std::vector< int > &mapRemainSeat_)

  Set the map of remaining seats.
- int getSeats () const

  Get the total number of seats.
- void setSeats (int seats_)

  Set the total number of seats.
- std::vector< int > getMapBallot () const

  Get the map of ballots.
- int getNumParties () const

  Get the total number of parties.
- int getQuota () const

  Get the quota value.

Additional Inherited Members

5.6.1 Constructor & Destructor Documentation

5.6.1.1 CPLVoteBallot()

```
CPLVoteBallot::CPLVoteBallot (
            std::vector< Party * > parties,
            std::vector< int > mapBallot,
            std::vector< int > mapAllocated,
            std::vector< int > mapRemain,
            int numSeats,
            int parttNum,
            int quotaNum )
```

Create a new CPLVoteBallot.

Parameters

parties	list of parties that participate election
mapBallot	map of parties and their total number of ballots received
mapAllocated	map of parites and the number of seats they received
mapRemain	map of parties and the number of remaining ballots
numSeat	total number of seats
partyNum	total number of parties

Returns

void

5.6.2 Member Function Documentation

5.6.2.1 getMapAllocatedSeat()

```
std::vector<int> CPLVoteBallot::getMapAllocatedSeat ( ) const  [inline]
```

Get the map of allocated seat.

Parameters

*parties_*	the new list of parties

Returns

std::vector<int>

5.6.2.2 getMapBallot()

```
std::vector<int> CPLVoteBallot::getMapBallot ( ) const  [inline]
```

Get the map of ballots.

Parameters

no	parameters

Returns

std::vector<int>

5.6.2.3 getMapRemainSeat()

```
std::vector<int> CPLVoteBallot::getMapRemainSeat ( ) const  [inline]
```

Get the map of remaining seats.

Parameters

no	parameters

Returns

std::vector<int>

5.6.2.4 getNumParties()

```
int CPLVoteBallot::getNumParties ( ) const  [inline]
```

Get the total number of parties.

Parameters

no	parameters

Returns

int

5.6.2.5 getParties()

```
std::vector<Party*> CPLVoteBallot::getParties ( ) const  [inline]
```

Get list of parties that participate election.

Parameters

no	parameters

Returns

std::vector<Party*>

5.6.2.6 getQuota()

```
int CPLVoteBallot::getQuota ( ) const  [inline]
```

Get the quota value.

Parameters

no	parameters

Returns

int

5.6.2.7 getSeats()

```
int CPLVoteBallot::getSeats ( ) const  [inline]
```

Get the total number of seats.

Parameters

no	parameters

Returns

int

5.6.2.8 setMapAllocatedSeat()

```
void CPLVoteBallot::setMapAllocatedSeat (
            const std::vector< int > & mapAllocatedSeat_ )  [inline]
```

Get the map of allocated seat.

Parameters

*mapAllocated↩ Seat_*	the new map of allocated seat

Returns

void

5.6.2.9 setMapRemainSeat()

```
void CPLVoteBallot::setMapRemainSeat (
            const std::vector< int > & mapRemainSeat_ )  [inline]
```

Set the map of remaining seats.

Parameters

*mapRemain↩ Seat_*	the new map of remaining seats

Returns

void

5.6.2.10 setParties()

```
void CPLVoteBallot::setParties (
            const std::vector< Party * > & parties_ )  [inline]
```

Set a list of parties that participate election.

Parameters

no	parameters

Returns

void

5.6.2.11 setSeats()

```
void CPLVoteBallot::setSeats (
            int seats_ )  [inline]
```

Set the total number of seats.

Parameters

seats↩ _	tota number of seat

Returns

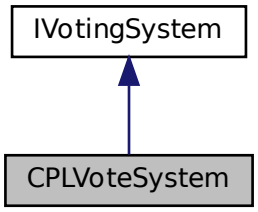
void

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

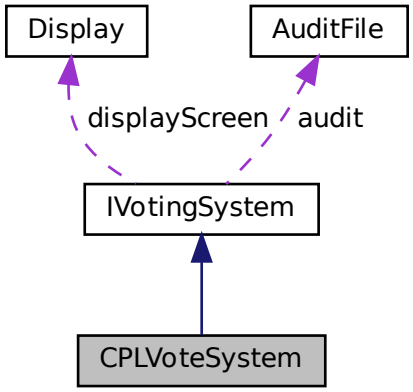
- src/include/CPLVoteBallot.h
- src/CPLVoteBallot.cpp

5.7 CPLVoteSystem Class Reference

Inheritance diagram for CPLVoteSystem:



Collaboration diagram for CPLVoteSystem:



Public Member Functions

- CPLVoteSystem (CPLVoteBallot *CPLVoteBallot)

  Create a new CPLVoteSystem with an input CPLVoteBallot.
- bool startElection ()

  Start election with checking the information ballots of each party.
- bool conductElection ()

  Conduct election according to CPL rules.
- std::vector< Candidate > getWinner ()

  Get the winners in each party.

Additional Inherited Members

5.7.1 Constructor & Destructor Documentation

5.7.1.1 CPLVoteSystem()

```
CPLVoteSystem::CPLVoteSystem (
            CPLVoteBallot * CPLVoteBallot )
```

Create a new CPLVoteSystem with an input CPLVoteBallot.

Parameters

incomingBallot	CPL ballot file

Returns

void

5.7.2 Member Function Documentation

5.7.2.1 conductElection()

```
bool CPLVoteSystem::conductElection ( )  [virtual]
```

Conduct election according to CPL rules.

Parameters

no	parameter

Returns

tool

Implements IVotingSystem.

5.7.2.2 getWinner()

```
std::vector<Candidate> CPLVoteSystem::getWinner ( )  [inline]
```

Get the winners in each party.

Parameters

no	parameter

Returns

std::vector<Candidate>

5.7.2.3 startElection()

```
bool CPLVoteSystem::startElection ( )  [virtual]
```

Start election with checking the information ballots of each party.

Parameters

no	parameter

Returns

bool

Implements IVotingSystem.

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

- src/include/CPLVoteSystem.h
- src/CPLVoteSystem.cpp

5.8 Display Class Reference

The Display class represents a display that can be used to output information.

```
#include <Display.h>
```

Public Member Functions

- Display (string outputTerminal)
  Constructor for the Display class.
- Display ()
  Default constructor for the Display class.
- void write (string outputTerminal)
  A function to append to the output terminal.
- void overWrite (string outputTerminal)
  A function to overwrite the output terminal.
- string print ()
  A function to print the output.
- string getOutputTerminal () const
  Getter function for the output terminal.
- void setOutputTerminal (const string &outputTerminal_)
  Setter function for the output terminal.

Protected Attributes

- string **outputTerminal**

5.8.1 Detailed Description

The Display class represents a display that can be used to output information.

5.8.2 Constructor & Destructor Documentation

5.8.2.1 Display()

```
Display::Display (
            string outputTerminal )
```

Constructor for the Display class.

Parameters

outputTerminal	The output terminal to be used.

5.8.3 Member Function Documentation

5.8.3.1 getOutputTerminal()

```
string Display::getOutputTerminal ( ) const  [inline]
```

Getter function for the output terminal.

Returns

The output terminal.

5.8.3.2 overWrite()

```
void Display::overWrite (
            string outputTerminal )
```

A function to overwrite the output terminal.

Parameters

outputTerminal	The new output to be displayed.

5.8.3.3 print()

```
string Display::print ( )
```

A function to print the output.

Returns

The output.

5.8.3.4 setOutputTerminal()

```
void Display::setOutputTerminal (
            const string & outputTerminal_ )  [inline]
```

Setter function for the output terminal.

Parameters

*output↩ Terminal_*	The output terminal to be set.

5.8.3.5 write()

```
void Display::write (
            string outputTerminal )
```

A function to append to the output terminal.

Parameters

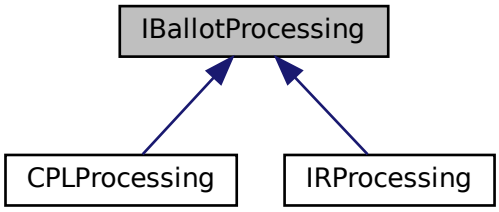
outputTerminal	is the information that will be appended to the terminal.

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

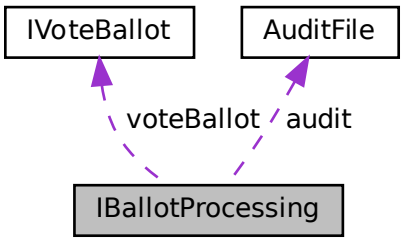
- src/include/Display.h
- src/Display.cpp

5.9 IBallotProcessing Class Reference

Inheritance diagram for IBallotProcessing:



Collaboration diagram for IBallotProcessing:



Public Member Functions

- virtual bool **setUp** ()=0
- virtual bool **read** ()=0
- virtual IVoteBallot * **output** ()=0
- virtual FILE * **getFile** () const
- virtual void **setFile** (FILE *file_)
- virtual int **getBLinesToRead** () const
- virtual void **setBLinesToRead** (int bLinesToRead_)
- virtual IVoteBallot * **getVoteBallot** ()
- virtual void **setVoteBallot** (IVoteBallot *voteBallot_)
- virtual std::vector< int > **getMapBallot** ()
- virtual void **setMapBallot** (const std::vector< int > &mapBallot_)
- AuditFile * **getAudit** () const
- void **setAudit** (AuditFile *audit_)
- int **getAuditing** () const
- void **setAuditing** (int auditing_)

Protected Attributes

- FILE * **file**
- int **bLinesToRead**
- IVoteBallot * **voteBallot**
- std::vector< int > **mapBallot**
- AuditFile * **audit**
- int **auditing** = 0

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

- src/include/IBallotProcessing.h

5.10 IElectionStratgey Class Reference

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

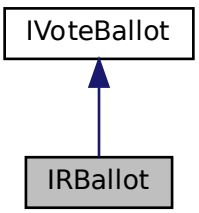
- src/include/IElectionStrategy.h

5.11 IRBallot Class Reference

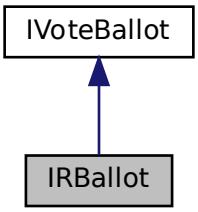
An output class from the IR Processing class. This class holds objects/information for the IR Vote System to condut its election and determine who's the winner.

`#include <IRBallot.h>`

Inheritance diagram for IRBallot:



Collaboration diagram for IRBallot:



Public Member Functions

- IRBallot (std::vector< IRCandidate * > candidate, std::vector< int > mapBallot, std::vector< double > mapPercentage)
  Construct a new IRBallot object.
- std::vector< IRCandidate * > getCandidates () const
  Get the list of Candidates.
- void setCandidates (const std::vector< IRCandidate * > &candidates_)
  Set the list of Candidates.
- std::vector< double > getMapPercentage () const
  Get the Percentage mapping.
- void setMapPercentage (const std::vector< double > &mapPercentage_)
  Set the Percentage mapping.
- int getNumCandidates () const
  Get the number of candidates.
- void setNumCandidates (int numCandidates_)
  Set the number of candidates.

Additional Inherited Members

5.11.1 Detailed Description

An output class from the IR Processing class. This class holds objects/information for the IR Vote System to condut its election and determine who's the winner.

5.11.2 Constructor & Destructor Documentation

5.11.2.1 IRBallot()

```
IRBallot::IRBallot (
            std::vector< IRCandidate * > candidate,
            std::vector< int > mapBallot,
            std::vector< double > mapPercentage )
```

Construct a new IRBallot object.

Parameters

candidate	vector<IRCandidate*> holds all the candidates
candidate	vector<IRCandidate*> holds all the candidates
mapBallot	vector<int> maps the amount of ballot each candidate has
mapPercentage	vector<double> maps the percentage each candidate has overall

5.11.3 Member Function Documentation

5.11.3.1 getCandidates()

```
std::vector<IRCandidate*> IRBallot::getCandidates ( ) const  [inline]
```

Get the list of Candidates.

Returns

std::vector<IRCandidate*>

5.11.3.2 getMapPercentage()

```
std::vector<double> IRBallot::getMapPercentage ( ) const  [inline]
```

Get the Percentage mapping.

Returns

std::vector<double>

5.11.3.3 getNumCandidates()

```
int IRBallot::getNumCandidates ( ) const  [inline]
```

Get the number of candidates.

Returns

int

5.11.3.4 setCandidates()

```
void IRBallot::setCandidates (
            const std::vector< IRCandidate * > & candidates_ )  [inline]
```

Set the list of Candidates.

Parameters

*candidates_*	vector<IRCandidate*>

5.11.3.5 setMapPercentage()

```
void IRBallot::setMapPercentage (
            const std::vector< double > & mapPercentage_ )  [inline]
```

Set the Percentage mapping.

Parameters

*mapPercentage_*	

5.11.3.6 setNumCandidates()

```
void IRBallot::setNumCandidates (
            int numCandidates_ )  [inline]
```

Set the number of candidates.

Parameters

*numCandidates_*	int

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

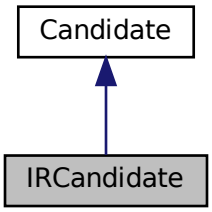
- src/include/IRBallot.h
- src/IRBallot.cpp

5.12 IRCandidate Class Reference

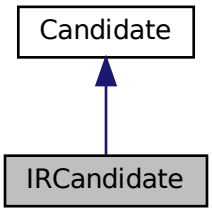
A candidate class for an Instant Runoff Candidate. This classs is for holding ballots.

```
#include <IRCandidate.h>
```

Inheritance diagram for IRCandidate:



Collaboration diagram for IRCandidate:



Public Member Functions

- IRCandidate (string name)

  Construct a new IRCandidate object.
- IRCandidate ()

  Construct a new IRCandidate object.
- void addBallot (Ballot *ballot_)

  Add a ballot to the candidate.
- vector< Ballot * > getBallotList ()

  Get the Ballot List object.
- void setBallotList (vector< Ballot * > list)

  Set the Ballot List object.
- int getNumBallots () const

  Get the number of ballots the IR Candidate has.
- void setNumBallots (int numBallots_)

  Set the number of ballots the IR Candidate has.
- Ballot * **popBallot** ()

Protected Attributes

- int numBallots = 0

  Holds the number of ballots.
- vector< Ballot * > ballotList

  Hold the list of ballots an IR candidate has.

5.12.1 Detailed Description

A candidate class for an Instant Runoff Candidate. This classs is for holding ballots.

5.12.2 Constructor & Destructor Documentation

5.12.2.1 IRCandidate() [1/2]

```
IRCandidate::IRCandidate (
            string name )
```

Construct a new IRCandidate object.

Parameters

name	a string argument for name of Candidate.

5.12.2.2 IRCandidate() [2/2]

```
IRCandidate::IRCandidate ( )
```

Construct a new IRCandidate object.

5.12.3 Member Function Documentation

5.12.3.1 addBallot()

```
void IRCandidate::addBallot (
            Ballot * ballot_ )
```

Add a ballot to the candidate.

Parameters

*ballot_*	A Ballot class input

5.12.3.2 getBallotList()

```
vector<Ballot*> IRCandidate::getBallotList ( )  [inline]
```

Get the Ballot List object.

Returns

vector<Ballot*>

5.12.3.3 getNumBallots()

```
int IRCandidate::getNumBallots ( ) const  [inline]
```

Get the number of ballots the IR Candidate has.

Returns

int

5.12.3.4 setBallotList()

```
void IRCandidate::setBallotList (
            vector< Ballot * > list )  [inline]
```

Set the Ballot List object.

Parameters

list	vector<Ballot*>

5.12.3.5 setNumBallots()

```
void IRCandidate::setNumBallots (
            int numBallots_ )  [inline]
```

Set the number of ballots the IR Candidate has.

Parameters

*numBallots_*	int

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

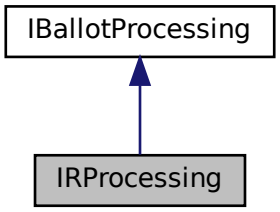
- src/include/IRCandidate.h
- src/IRCandidate.cpp

5.13 IRProcessing Class Reference

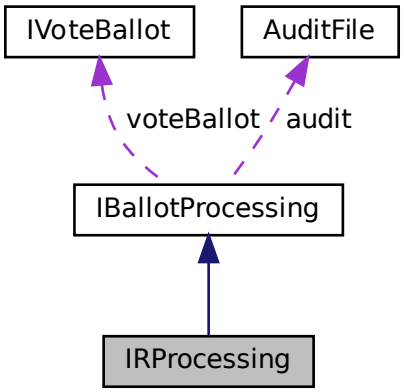
IR Processing is to process all ballots in a .csv file and prepare an organized set of information to send to the IRVoteSystem class, conducting and determining the winner.

`#include <IRProcessing.h>`

Inheritance diagram for IRProcessing:



Collaboration diagram for IRProcessing:



Public Member Functions

- IRProcessing ()

  Construct a new IRProcessing object.
- **IRProcessing** (FILE *file)
- IRProcessing (IRBallot *ballot)

  Construct a new IRProcessing object given the IRBallot (A class containing the organized information to send to vote election).
- char * nextLine ()

  Helper function to read the next line and return the contente seperated by ','.
- bool setUp ()

  Function to read the header parts of the .csv file and fill out the necessarily information. Does not read the ballots in the .csv file.
- bool read ()

  Function to read all the ballots in the .csv and distribute to each candidate.
- IRBallot * output ()

  Create an object holding required information for the voting election in order to conduct.
- void calculate ()

  Calculate the map percentage. Each candidate's number of ballots is divided by the total ballots found in the .csv file.
- bool redistribute (IRCandidate *cand)

  Function to remove all the ballots in a eliminated candidate and distribute the ballot to the next preference candidate.
- int getNumCandidates () const

  Get the number of candidates left in election.
- void setNumCandidates (int numCandidates_)

  Set the number of candidates left in election.
- std::vector< IRCandidate * > getCandidates () const

  Get the list of IRCandidates.
- void setCandidates (const std::vector< IRCandidate * > &candidates_)

  Set the list of IRCandidates.
- std::vector< double > getMapPercentage () const

  Get the mapping of percentage.
- void setMapPercentage (const std::vector< double > &mapPercentage_)

  Set the percentage mapping.

Additional Inherited Members

5.13.1 Detailed Description

IR Processing is to process all ballots in a .csv file and prepare an organized set of information to send to the IRVoteSystem class, conducting and determining the winner.

THe processing will also handle redistribution if a candidate is eliminated.

5.13.2 Constructor & Destructor Documentation

5.13.2.1 IRProcessing() [1/2]

```
IRProcessing::IRProcessing ( )  [inline]
```

Construct a new IRProcessing object.

Parameters

file	FILE (the .csv file)

5.13.2.2 IRProcessing() [2/2]

```
IRProcessing::IRProcessing (
            IRBallot * ballot )
```

Construct a new IRProcessing object given the IRBallot (A class containing the organized information to send to vote election).

Parameters

ballot	IRBallot*

5.13.3 Member Function Documentation

5.13.3.1 getCandidates()

```
std::vector<IRCandidate*> IRProcessing::getCandidates ( ) const  [inline]
```

Get the list of IRCandidates.

Returns

std::vector<IRCandidate*>

5.13.3.2 getMapPercentage()

```
std::vector<double> IRProcessing::getMapPercentage ( ) const  [inline]
```

Get the mapping of percentage.

Returns

std::vector<double>

5.13.3.3 getNumCandidates()

```
int IRProcessing::getNumCandidates ( ) const  [inline]
```

Get the number of candidates left in election.

Returns

int

5.13.3.4 nextLine()

```
char * IRProcessing::nextLine ( )
```

Helper function to read the next line and return the contente seperated by ','.

Returns

char*

5.13.3.5 output()

```
IRBallot * IRProcessing::output ( )  [virtual]
```

Create an object holding required information for the voting election in order to conduct.

Returns

IRBallot* the class containing information.

Implements IBallotProcessing.

5.13.3.6 read()

```
bool IRProcessing::read ( )  [virtual]
```

Function to read all the ballots in the .csv and distribute to each candidate.

Returns

true if the reading was sucessful
false if the reading failed

Implements IBallotProcessing.

5.13.3.7 redistribute()

```
bool IRProcessing::redistribute (
            IRCandidate * cand )
```

Function to remove all the ballots in a eliminated candidate and distribute the ballot to the next preference candidate.

Parameters

cand	IRCandidate* the eliminated candidate.

Returns

true if redistribution was sucessful.

false if an error has occured.

5.13.3.8 setCandidates()

```
void IRProcessing::setCandidates (
            const std::vector< IRCandidate * > & candidates_ )  [inline]
```

Set the list of IRCandidates.

Parameters

*candidates_*	vector<IRCandidate*>

5.13.3.9 setMapPercentage()

```
void IRProcessing::setMapPercentage (
            const std::vector< double > & mapPercentage_ )  [inline]
```

Set the percentage mapping.

Parameters

*mapPercentage_*	vector<double>

5.13.3.10 setNumCandidates()

```
void IRProcessing::setNumCandidates (
            int numCandidates_ )  [inline]
```

Set the number of candidates left in election.

Parameters

*num↩ Candidates_*	int

5.13.3.11 setUp()

```
bool IRProcessing::setUp ( )  [virtual]
```

Function to read the header parts of the .csv file and fill out the necessarily information. Does not read the ballots in the .csv file.

Returns

true if the set up was suceessful

false if the set up fail

Implements IBallotProcessing.

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

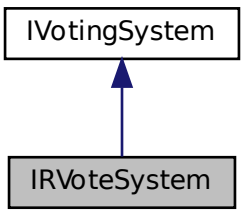
- src/include/IRProcessing.h
- src/IRProcessing.cpp

5.14 IRVoteSystem Class Reference

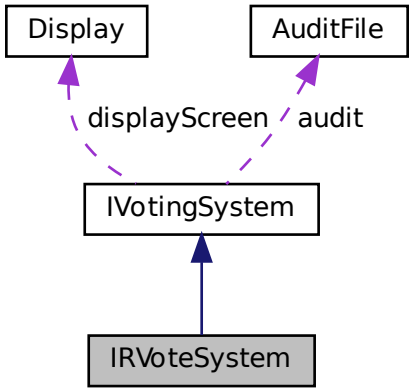
The voting system to conduct the election and determine a winning candidate.

```
#include <IRVoteSystem.h>
```

Inheritance diagram for IRVoteSystem:



Collaboration diagram for IRVoteSystem:



Public Member Functions

- IRVoteSystem ()

  Construct a new IRVoteSystem object.
- IRVoteSystem (IRProcessing ∗ballotSystem_, IRBallot ∗ballot)

  Construct a new IRVoteSystem objec given the IR Ballot Processing system and the IR Ballot.
- bool startElection ()

  Start the election process and determine a winner.
- bool conductElection ()

  Helper function for startElection() where it compares the percentage mapping and if there's a majority winner.
- std::vector< IRCandidate ∗ > getElimnation ()

  Get the eliminated candidate. It is the candidate with the lowest amount of ballots.
- IRBallot ∗ getProcessedBallot () const

  Get the information used for the vote election.
- void setProcessedBallot (IRBallot ∗processedBallot_)

  Set the information used for the vote election.
- IRProcessing ∗ getBallotSystem () const

  Get the ballot processing system used for the vote election.
- void setBallotSystem (IRProcessing ∗ballotSystem_)

  Set the ballot processing system used for the vote election.
- IRCandidate getWinner () const

  Get the winner.
- void setWinner (const IRCandidate &winner_)

  Set the winner.
- std::vector< IRCandidate ∗ > getCandidates () const

  Get the list of Candidates in the election.
- void setCandidates (const std::vector< IRCandidate ∗ > &candidates_)

  Set the list of Candidates in the election.

Additional Inherited Members

5.14.1 Detailed Description

The voting system to conduct the election and determine a winning candidate.

For redistribution, the IR Vote System will use the ballot processing system associating with it.

5.14.2 Constructor & Destructor Documentation

5.14.2.1 IRVoteSystem() [1/2]

```
IRVoteSystem::IRVoteSystem ( )  [inline]
```

Construct a new IRVoteSystem object.

5.14.2.2 IRVoteSystem() [2/2]

```
IRVoteSystem::IRVoteSystem (
            IRProcessing * ballotSystem_,
            IRBallot * ballot )
```

Construct a new IRVoteSystem objec given the IR Ballot Processing system and the IR Ballot.

Parameters

*ballot↩ System_*	IRProcessing* the processing system used in order to redistribute
ballot	IRBallot* contains all the information to conduct the election

5.14.3 Member Function Documentation

5.14.3.1 conductElection()

```
bool IRVoteSystem::conductElection ( )  [virtual]
```

Helper function for startElection() where it compares the percentage mapping and if there's a majority winner.

Returns

true if the winner has been decided

false if somehow the winner has not been decided

Implements IVotingSystem.

5.14.3.2 getBallotSystem()

```
IRProcessing* IRVoteSystem::getBallotSystem ( ) const  [inline]
```

Get the ballot processing system used for the vote election.

Returns

IRProcessing*

5.14.3.3 getCandidates()

```
std::vector<IRCandidate*> IRVoteSystem::getCandidates ( ) const  [inline]
```

Get the list of Candidates in the election.

Returns

std::vector<IRCandidate*>

5.14.3.4 getElimnation()

```
std::vector< IRCandidate * > IRVoteSystem::getElimnation ( )
```

Get the eliminated candidate. It is the candidate with the lowest amount of ballots.

It is a vector incase there is more than 1 candidate with the same amount of lowest ballots.

Returns

std::vector<IRCandidate*> List of candidate with the lowest amount of ballots. Often times, there's only 1 candidate.

5.14.3.5 getProcessedBallot()

```
IRBallot* IRVoteSystem::getProcessedBallot ( ) const  [inline]
```

Get the information used for the vote election.

Returns

IRBallot*

5.14.3.6 getWinner()

```
IRCandidate IRVoteSystem::getWinner ( ) const  [inline]
```

Get the winner.

Returns

IRCandidate the winner

5.14.3.7 setBallotSystem()

```
void IRVoteSystem::setBallotSystem (
            IRProcessing * ballotSystem_ )  [inline]
```

Set the ballot processing system used for the vote election.

Parameters

*ballotSystem_*	IRProcessing*

5.14.3.8 setCandidates()

```
void IRVoteSystem::setCandidates (
            const std::vector< IRCandidate * > & candidates_ )  [inline]
```

Set the list of Candidates in the election.

Parameters

*candidates_*	vector<IRCandidate*>

5.14.3.9 setProcessedBallot()

```
void IRVoteSystem::setProcessedBallot (
            IRBallot * processedBallot_ )  [inline]
```

Set the information used for the vote election.

Parameters

*processedBallot_*	IRBallot*

5.14.3.10 setWinner()

```
void IRVoteSystem::setWinner (
            const IRCandidate & winner_ )  [inline]
```

Set the winner.

Parameters

*winner_*	IRCandidate

5.14.3.11 startElection()

```
bool IRVoteSystem::startElection ( )  [virtual]
```

Start the election process and determine a winner.

Returns

true if the winner has been decided

false if somehow the winner has not been decided

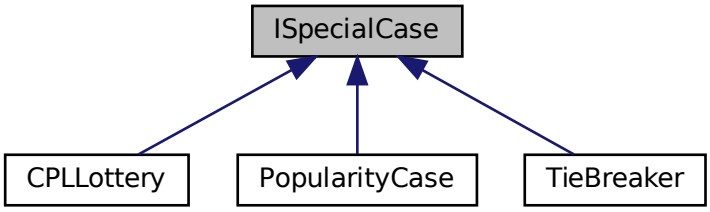
Implements IVotingSystem.

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

- src/include/IRVoteSystem.h
- src/IRVoteSystem.cpp

5.15 ISpecialCase Class Reference

Inheritance diagram for ISpecialCase:



Public Member Functions

- virtual int **run** ()=0

Protected Attributes

- std::vector< int > **mapBiasTracker**

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

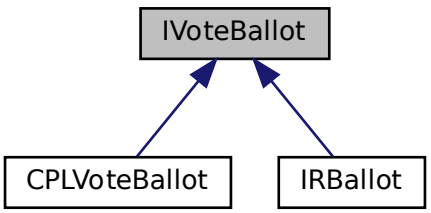
- src/include/ISpecialCase.h

5.16 IVoteBallot Class Reference

The abstract class where all VoteBallots are inherited from.

`#include <IVoteBallot.h>`

Inheritance diagram for IVoteBallot:



Public Member Functions

- std::vector< int > getMapBallot () const
  get the mapping of ballots to <candidates / parties / ...>
- void setMapBallot (const std::vector< int > &mapBallot_)
  Set the mapping of ballots to <candidates / parties / ...>
- int getTotalBallot () const
  Get the total amount of ballots.
- void setTotalBallot (int totalBallot_)
  Set the total amount of ballots.

Protected Attributes

- std::vector< int > mapBallot
  Holds the mapping of ballots.
- int totalBallot
  total amount of ballots

5.16.1 Detailed Description

The abstract class where all VoteBallots are inherited from.

VoteBallots contains all necessarily information and is produced by a Ballot Processing class.

VoteBallots are used in its pertaining Vote Election to conduct an election

5.16.2 Member Function Documentation

5.16.2.1 getMapBallot()

```
std::vector<int> IVoteBallot::getMapBallot ( ) const  [inline]
```

get the mapping of ballots to <candidates / parties / ...>

Returns

std::vector<int>

5.16.2.2 getTotalBallot()

```
int IVoteBallot::getTotalBallot ( ) const  [inline]
```

Get the total amount of ballots.

Returns

int

5.16.2.3 setMapBallot()

```
void IVoteBallot::setMapBallot (
            const std::vector< int > & mapBallot_ )  [inline]
```

Set the mapping of ballots to <candidates / parties / ...>

Parameters

*map↩ Ballot_*	

5.16.2.4 setTotalBallot()

```
void IVoteBallot::setTotalBallot (
            int totalBallot_ )  [inline]
```

Set the total amount of ballots.

Parameters

*total↩ Ballot_*	int

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

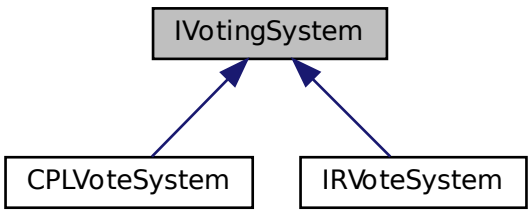
- src/include/IVoteBallot.h

5.17 IVotingSystem Class Reference

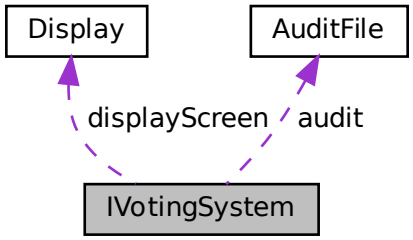
The abstract class for each voting election system will inherit from.

```
#include <IVotingSystem.h>
```

Inheritance diagram for IVotingSystem:



Collaboration diagram for IVotingSystem:



Public Member Functions

- virtual bool startElection ()=0

  To start the election process and handle special cases.
- virtual bool conductElection ()=0

  A helper function to startElection. Is used to determine a winner.
- AuditFile * getAuditFile () const

  Get the Audit File object.
- void setAuditFile (AuditFile *auditFile_)

  Set the Audit File object.
- Display * getDisplayScreen () const

  Get the Display Screen object.
- void setDisplayScreen (Display *displayScreen_)

  Set the Display Screen object.
- int getStatus () const

  get the status of the election.
- void setStatus (int status_)

  Set the status of the election. 1 if complete. -1 if incomplete.
- int getAuditing () const

  Get the write to audit option int.
- void setAuditing (int auditing_)

  Set the write to audit option int.
- vector< ISpecialCase * > getSpecialCase () const

  Get the Special Cases vector.
- void setSpecialCase (const vector< ISpecialCase * > &specialCase_)

  Set the Special Cases vector.

Protected Attributes

- vector< ISpecialCase * > specialCase

  Hold the methods of special cases handler.
- AuditFile * audit

  the audit file that will be produced

- Display * displayScreen

  the display object
- int status = -1

  1 if election is complete and winner is found.
- int auditing = 0

  1(true) if should write to audit. 0(False) to avoid audit.

5.17.1 Detailed Description

The abstract class for each voting election system will inherit from.

5.17.2 Member Function Documentation

5.17.2.1 conductElection()

```
virtual bool IVotingSystem::conductElection ( )  [pure virtual]
```

A helper function to startElection. Is used to determine a winner.

Returns

true if winner was found.

false

Implemented in IRVoteSystem, and CPLVoteSystem.

5.17.2.2 getAuditFile()

```
AuditFile* IVotingSystem::getAuditFile ( ) const  [inline]
```

Get the Audit File object.

Returns

AuditFile*

5.17.2.3 getAuditing()

```
int IVotingSystem::getAuditing ( ) const  [inline]
```

Get the write to audit option int.

Returns

int

5.17.2.4 getDisplayScreen()

```
Display* IVotingSystem::getDisplayScreen ( ) const  [inline]
```

Get the Display Screen object.

Returns

Display*

5.17.2.5 getSpecialCase()

```
vector<ISpecialCase*> IVotingSystem::getSpecialCase ( ) const  [inline]
```

Get the Special Cases vector.

Returns

vector<ISpecialCase*>

5.17.2.6 getStatus()

```
int IVotingSystem::getStatus ( ) const  [inline]
```

get the status of the election.

Returns

int

5.17.2.7 setAuditFile()

```
void IVotingSystem::setAuditFile (
            AuditFile * auditFile_ )  [inline]
```

Set the Audit File object.

Parameters

*auditFile_*	AuditFile

5.17.2.8 setAuditing()

```
void IVotingSystem::setAuditing (
            int auditing_ )  [inline]
```

Set the write to audit option int.

Parameters

*auditing_*	int

5.17.2.9 setDisplayScreen()

```
void IVotingSystem::setDisplayScreen (
            Display * displayScreen_ )  [inline]
```

Set the Display Screen object.

Parameters

*displayScreen_*	Display

5.17.2.10 setSpecialCase()

```
void IVotingSystem::setSpecialCase (
            const vector< ISpecialCase * > & specialCase_ )  [inline]
```

Set the Special Cases vector.

Parameters

*specialCase_*	

5.17.2.11 setStatus()

```
void IVotingSystem::setStatus (
            int status_ )  [inline]
```

Set the status of the election. 1 if complete. -1 if incomplete.

Parameters

*status_*	int

5.17.2.12 startElection()

```
virtual bool IVotingSystem::startElection ( )  [pure virtual]
```

To start the election process and handle special cases.

Returns

true if sucessful.

false

Implemented in IRVoteSystem, and CPLVoteSystem.

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

- src/include/IVotingSystem.h

5.18 Party Class Reference

A class representing a political party with candidate information and seat limits.

`#include <Party.h>`

Public Member Functions

- Party (vector< Candidate > candidates, int maxSeat, string name)
  Construct a new Party object with the given candidates, maximum number of seats, and name.
- Party ()
  Construct a new, empty Party object.
- string getName ()
  Get the name of the party.
- void setName (string newName)
  Set the name of the party.
- vector< Candidate > getCandidate ()
  Get the vector of Candidate objects representing the candidates in the party.
- void setMaxSeat (int newMaxSeat)
  Set the maximum number of seats the party can have.
- void setCandidate (Candidate candidate)
  Add a new Candidate to the party.
- int getMaxSeat ()
  Get the maximum number of seats the party can have.

Protected Attributes

- vector< Candidate > **candidates**
- int **maxSeat**
- string **name**

5.18.1 Detailed Description

A class representing a political party with candidate information and seat limits.

This class stores a vector of Candidate objects, an integer maximum number of seats, and a string name for the party. It provides methods to get and set these values, as well as add candidates to the party.

5.18.2 Constructor & Destructor Documentation

5.18.2.1 Party() [1/2]

```
Party::Party (
            vector< Candidate > candidates,
            int maxSeat,
            string name )
```

Construct a new Party object with the given candidates, maximum number of seats, and name.

Parameters

candidates	A vector of Candidate objects representing the candidates in the party.
maxSeat	An integer representing the maximum number of seats the party can have.
name	A string representing the name of the party.

5.18.2.2 Party() [2/2]

```
Party::Party ( )
```

Construct a new, empty Party object.

5.18.3 Member Function Documentation

5.18.3.1 getCandidate()

```
vector<Candidate> Party::getCandidate ( )  [inline]
```

Get the vector of Candidate objects representing the candidates in the party.

Returns

A vector of Candidate objects representing the candidates in the party.

5.18.3.2 getMaxSeat()

```
int Party::getMaxSeat ( )  [inline]
```

Get the maximum number of seats the party can have.

Returns

An integer representing the maximum number of seats the party can have.

5.18.3.3 getName()

```
string Party::getName ( )  [inline]
```

Get the name of the party.

Returns

A string representing the name of the party.

5.18.3.4 setCandidate()

```
void Party::setCandidate (
            Candidate candidate )  [inline]
```

Add a new Candidate to the party.

Parameters

candidate	A Candidate object representing the new candidate to add to the party.

5.18.3.5 setMaxSeat()

```
void Party::setMaxSeat (
            int newMaxSeat )  [inline]
```

Set the maximum number of seats the party can have.

Parameters

newMaxSeat	An integer representing the new maximum number of seats for the party.

5.18.3.6 setName()

```
void Party::setName (
            string newName )  [inline]
```

Set the name of the party.

Parameters

newName	A string representing the new name of the party.

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

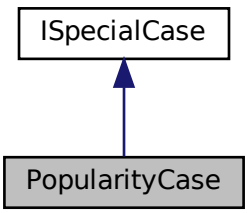
- src/include/Party.h
- src/Party.cpp

5.19 PopularityCase Class Reference

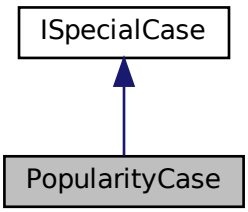
A class representing a popularity special case implementation.

`#include <PopularityCase.h>`

Inheritance diagram for PopularityCase:



Collaboration diagram for PopularityCase:



Public Member Functions

- PopularityCase (std::vector< IRCandidate * >candidates)

  Construct a new PopularityCase object with the given vector of IRCandidate pointers.
- int run ()

  Run the popularity special case with the current set of candidates.
- int helper ()

  A helper method used internally by the class.
- vector< IRCandidate * > getCandidates () const

  Get the current set of candidates.
- void setCandidates (const vector< IRCandidate * > &candidates_)

  Set the current set of candidates to the given vector of IRCandidate pointers.

Additional Inherited Members

5.19.1 Detailed Description

A class representing a popularity special case implementation.

This class inherits from the ISpecialCase interface and provides an implementation for the run() method. It takes a vector of IRCandidate pointers as input and stores it in a private member variable. It also provides a helper() method and getter/setter methods for the candidates member variable.

5.19.2 Constructor & Destructor Documentation

5.19.2.1 PopularityCase()

```
PopularityCase::PopularityCase (
            std::vector< IRCandidate * > candidates )
```

Construct a new PopularityCase object with the given vector of IRCandidate pointers.

Parameters

candidates	A vector of IRCandidate pointers.

5.19.3 Member Function Documentation

5.19.3.1 getCandidates()

```
vector<IRCandidate*> PopularityCase::getCandidates ( ) const  [inline]
```

Get the current set of candidates.

Returns

A vector of IRCandidate pointers.

5.19.3.2 helper()

```
int PopularityCase::helper ( )
```

A helper method used internally by the class.

Returns

An integer representing the result of the helper method.

5.19.3.3 run()

```
int PopularityCase::run ( )  [virtual]
```

Run the popularity special case with the current set of candidates.

Returns

An integer representing the result of the popularity special case.

Implements ISpecialCase.

5.19.3.4 setCandidates()

```
void PopularityCase::setCandidates (
            const vector< IRCandidate * > & candidates_ )  [inline]
```

Set the current set of candidates to the given vector of IRCandidate pointers.

Parameters

candidates↩ _	A vector of IRCandidate pointers.

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

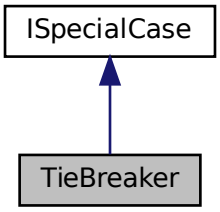
- src/include/PopularityCase.h
- src/PopularityCase.cpp

5.20 TieBreaker Class Reference

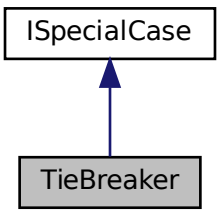
A class representing a tiebreaker special case implementation.

```
#include <TieBreaker.h>
```

Inheritance diagram for TieBreaker:



Collaboration diagram for TieBreaker:



Public Member Functions

- TieBreaker ()

  Construct a new TieBreaker object.
- int run ()

  Run the tiebreaker special case with default parameters.
- int run (int size)

  Run the tiebreaker special case with the given size parameter.

Additional Inherited Members

5.20.1 Detailed Description

A class representing a tiebreaker special case implementation.

This class inherits from the ISpecialCase interface and provides implementations for the run() and run(int) methods. It also has a default constructor.

5.20.2 Constructor & Destructor Documentation

5.20.2.1 TieBreaker()

```
TieBreaker::TieBreaker ( )  [inline]
```

Construct a new TieBreaker object.

5.20.3 Member Function Documentation

5.20.3.1 run() [1/2]

```
int TieBreaker::run ( )  [virtual]
```

Run the tiebreaker special case with default parameters.

Returns

An integer representing the result of the tiebreaker.

Implements ISpecialCase.

5.20.3.2 run() [2/2]

```
int TieBreaker::run (
            int size )
```

Run the tiebreaker special case with the given size parameter.

Parameters

size	An integer representing the size parameter for the tiebreaker.

Returns

An integer representing the result of the tiebreaker.

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

- src/include/TieBreaker.h
- src/TieBreaker.cpp

Chapter 6

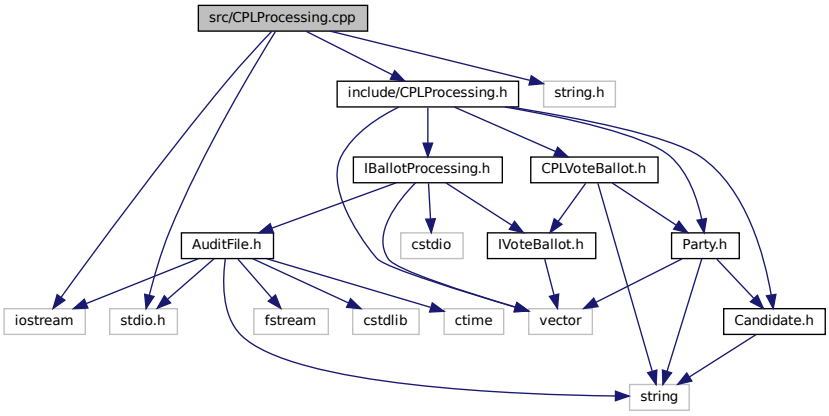
File Documentation

6.1 src/CPLProcessing.cpp File Reference

Process CPL ballot file and save the information of parties, candidates and seats.

```
#include <iostream>
#include <stdio.h>
#include <string.h>
#include "include/CPLProcessing.h"
```

Include dependency graph for CPLProcessing.cpp:



6.1.1 Detailed Description

Process CPL ballot file and save the information of parties, candidates and seats.

Implementation of the functions of CPLProcessing

Author

Wenjing Jiang

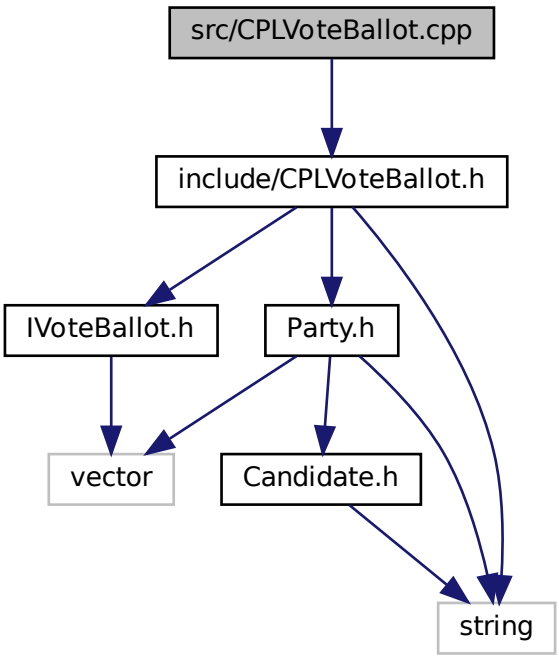
Bug No known bugs.

6.2 src/CPLVoteBallot.cpp File Reference

Initiate CPLVoteBallot.

```
#include "include/CPLVoteBallot.h"
```

Include dependency graph for CPLVoteBallot.cpp:



6.2.1 Detailed Description

Initiate CPLVoteBallot.

Author

Wenjing Jiang

Bug No known bugs.

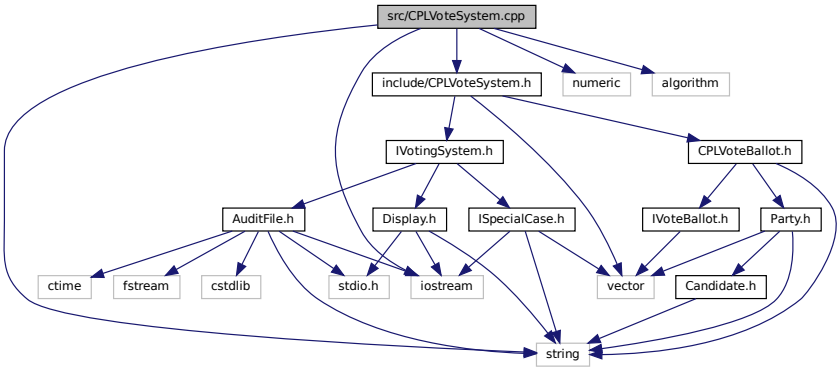
6.3 src/CPLVoteSystem.cpp File Reference

Conduct election according to CPL rules and show the winners.

```
#include <iostream>
#include <string>
```

```
#include <numeric>
#include <algorithm>
#include "include/CPLVoteSystem.h"
```

Include dependency graph for CPLVoteSystem.cpp:



6.3.1 Detailed Description

Conduct election according to CPL rules and show the winners.

Author

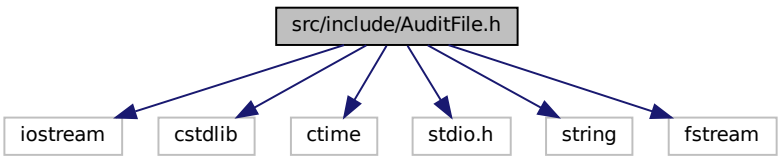
Wenjing Jiang

Bug No known bugs.

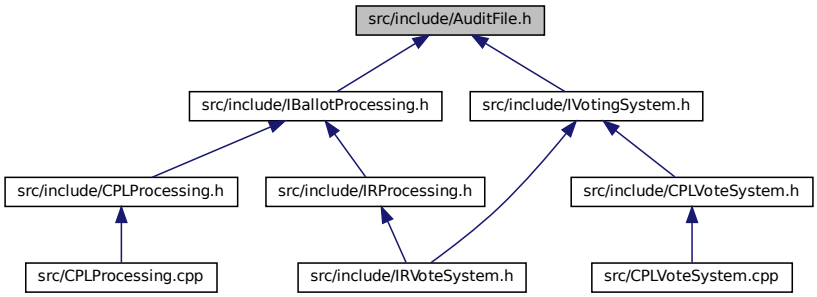
6.4 src/include/AuditFile.h File Reference

```
#include <iostream>
#include <cstdlib>
#include <ctime>
#include <stdio.h>
#include <string>
#include <fstream>
```

Include dependency graph for AuditFile.h:



This graph shows which files directly or indirectly include this file:



Classes

- class AuditFile

  The AuditFile class represents a file that logs information about a voting audit.

6.4.1 Detailed Description

Author

Matin Horri (horri031@umn.edu)

Version

0.1

Date

2023-03-25

Copyright

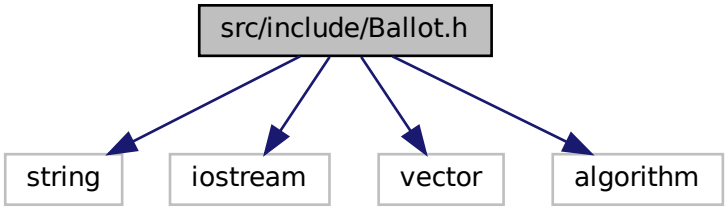
Copyright (c) 2023

6.5 src/include/Ballot.h File Reference

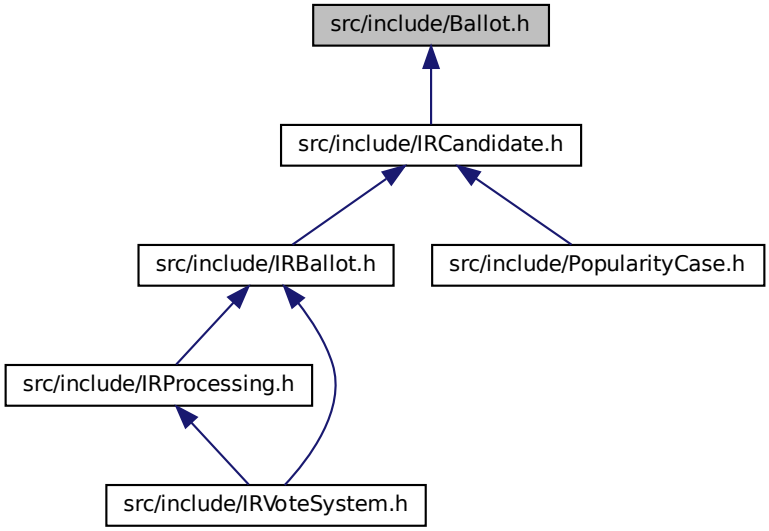
```
#include <string>
#include <iostream>
#include <vector>
```

```
#include <algorithm>
```

Include dependency graph for Ballot.h:



This graph shows which files directly or indirectly include this file:



Classes

- class Ballot

  A Ballot class to hold an individual ballot found in a Instant Runoff election. Each IR Candidate will hold a list of this Ballot.

6.5.1 Detailed Description

Author

your name (you@domain.com)

Version

0.1

Date

2023-03-25

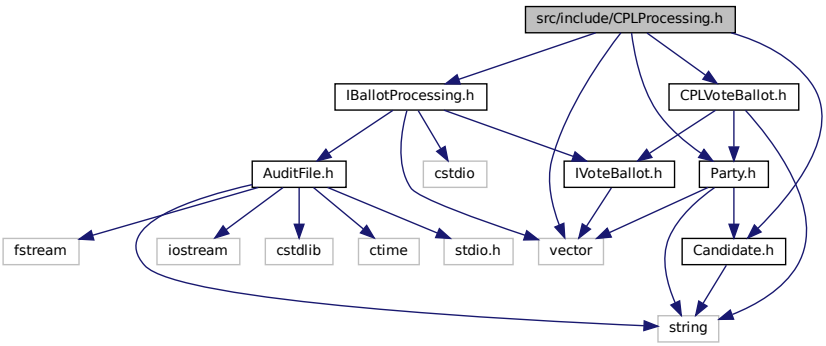
Copyright

6.6 src/include/CPLProcessing.h File Reference

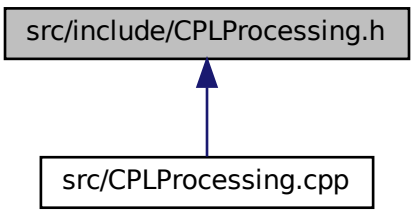
Process CPL ballot file and save the information of parties, candidates and seats.

```
#include <vector>
#include "IBallotProcessing.h"
#include "Party.h"
#include "Candidate.h"
#include "CPLVoteBallot.h"
```

Include dependency graph for CPLProcessing.h:



This graph shows which files directly or indirectly include this file:



Classes

- class CPLProcessing

6.6.1 Detailed Description

Process CPL ballot file and save the information of parties, candidates and seats.

Author

Wenjing Jiang

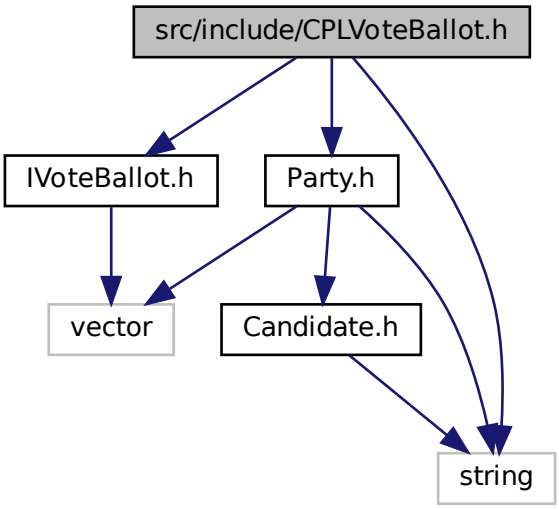
Bug No known bugs.

6.7 src/include/CPLVoteBallot.h File Reference

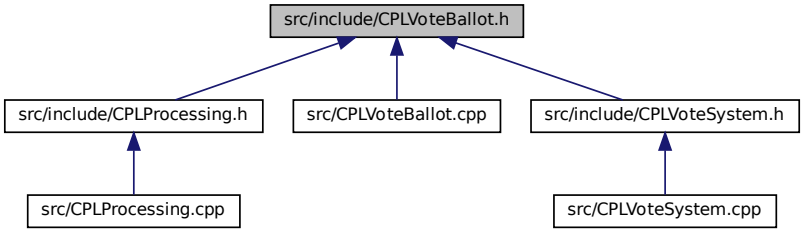
CPLVoteBallot saves information of election.

```
#include "IVoteBallot.h"
#include "Party.h"
#include <string>
```

Include dependency graph for CPLVoteBallot.h:



This graph shows which files directly or indirectly include this file:



Classes

- class CPLVoteBallot

6.7.1 Detailed Description

CPLVoteBallot saves information of election.

Author

Wenjing Jiang (you@domain.com)

Version

0.1

Date

2023-03-26

Copyright

Copyright (c) 2023

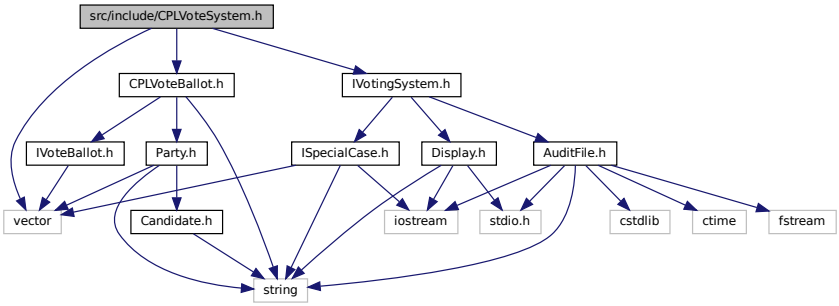
6.8 src/include/CPLVoteSystem.h File Reference

Conduct election and show winners.

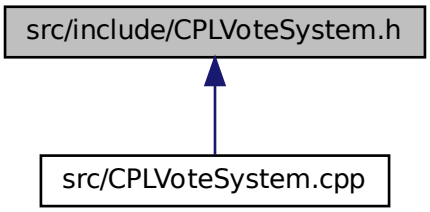
```
#include "CPLVoteBallot.h"
#include "IVotingSystem.h"
```

```
#include <vector>
```

Include dependency graph for CPLVoteSystem.h:



This graph shows which files directly or indirectly include this file:



Classes

- class CPLVoteSystem

6.8.1 Detailed Description

Conduct election and show winners.

Author

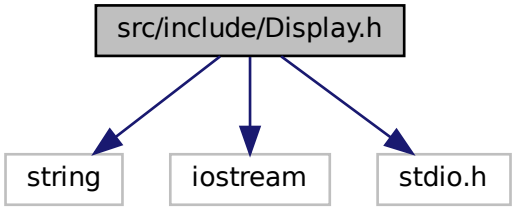
Wenjing Jiang

Bug No known bugs.

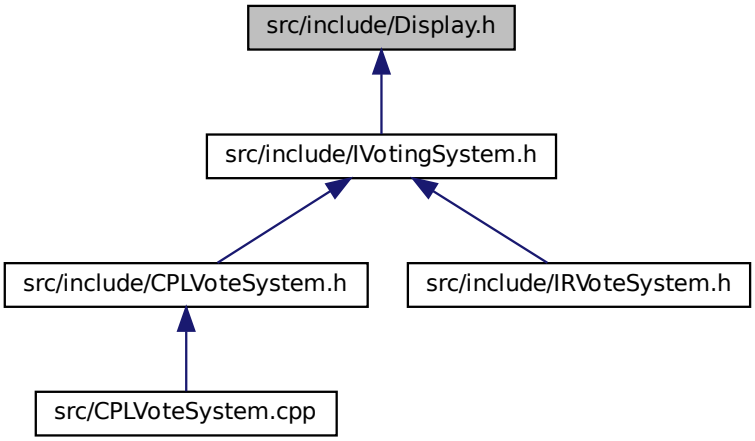
6.9 src/include/Display.h File Reference

```
#include <string>
#include <iostream>
#include <stdio.h>
```

Include dependency graph for Display.h:



This graph shows which files directly or indirectly include this file:



Classes

- class Display

  The Display class represents a display that can be used to output information.

6.9.1 Detailed Description

Author

Matin Horri (horri031@umn.edu)

Version

0.1

Date

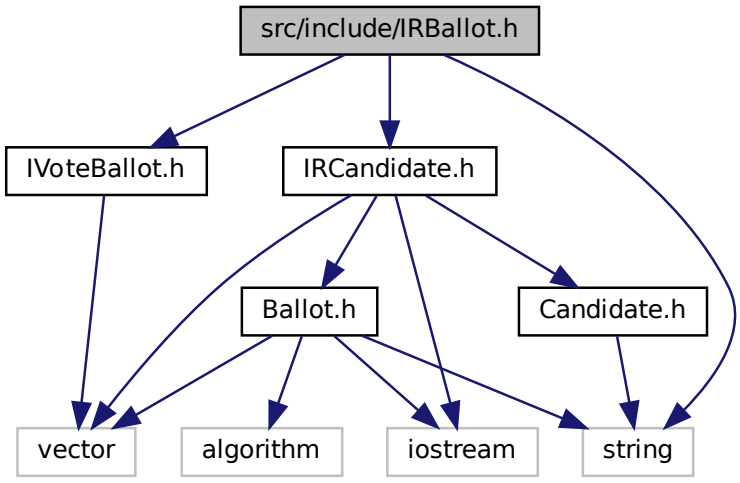
2023-03-25

Copyright

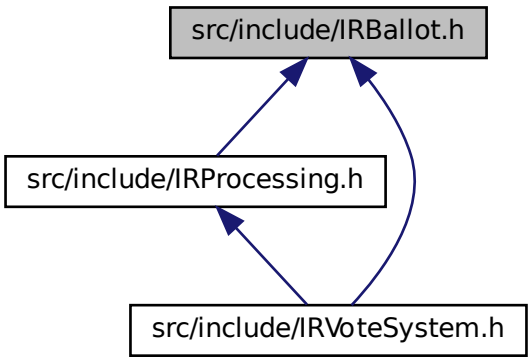
6.10 src/include/IRBallot.h File Reference

```
#include "IVoteBallot.h"
#include "IRCandidate.h"
#include <string>
```

Include dependency graph for IRBallot.h:



This graph shows which files directly or indirectly include this file:



Classes

- class IRBallot

  An output class from the IR Processing class. This class holds objects/information for the IR Vote System to conduct its election and determine who's the winner.

6.10.1 Detailed Description

Author

Michael Vang (vang2891@umn.edu)

Version

0.1

Date

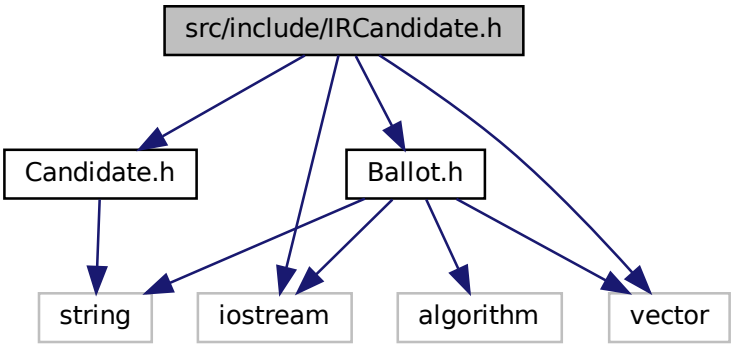
2023-03-24

Copyright

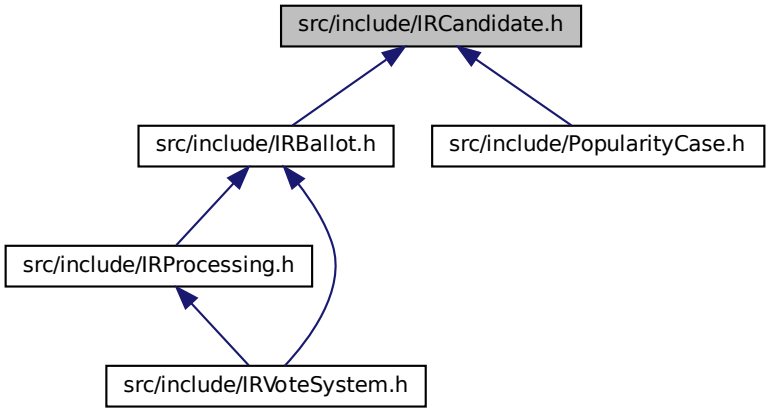
6.11 src/include/IRCandidate.h File Reference

```
#include "Ballot.h"
#include "Candidate.h"
#include <iostream>
#include <vector>
```

Include dependency graph for IRCandidate.h:



This graph shows which files directly or indirectly include this file:



Classes

- class IRCandidate

  A candidate class for an Instant Runoff Candidate. This classs is for holding ballots.

6.11.1 Detailed Description

Author

your name (you@domain.com)

Version

0.1

Date

2023-03-24

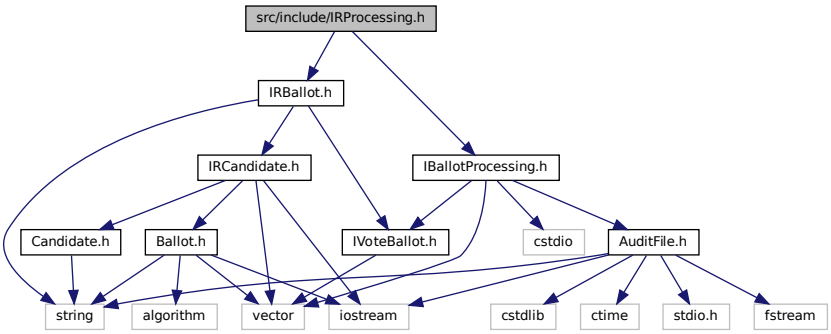
Copyright

Copyright (c) 2023

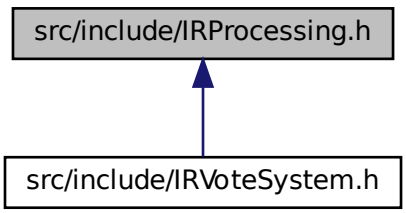
6.12 src/include/IRProcessing.h File Reference

```
#include "IRBallot.h"
#include "IBallotProcessing.h"
```

Include dependency graph for IRProcessing.h:



This graph shows which files directly or indirectly include this file:



Classes

- class IRProcessing

  IR Processing is to process all ballots in a .csv file and prepare an organized set of information to send to the IRVoteSystem class, conducting and determining the winner.

6.12.1 Detailed Description

Author

Michael Vang (vang2891@umn.edu)

Version

0.1

Date

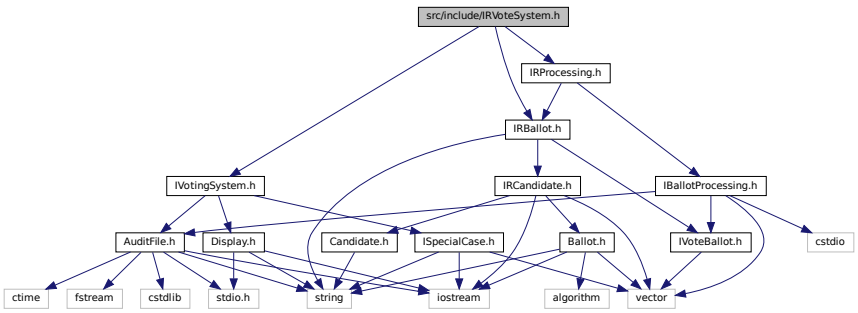
2023-03-24

Copyright

6.13 src/include/IRVoteSystem.h File Reference

```
#include "IVotingSystem.h"
#include "IRBallot.h"
#include "IRProcessing.h"
```

Include dependency graph for IRVoteSystem.h:



Classes

- class IRVoteSystem

  The voting system to conduct the election and determine a winning candidate.

6.13.1 Detailed Description

Author

Michael Vang (vang2891@umn.edu)

Version

0.1

Date

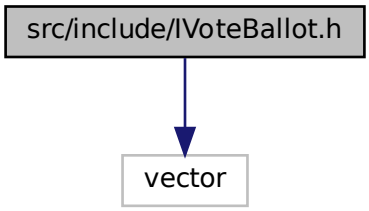
2023-03-24

Copyright

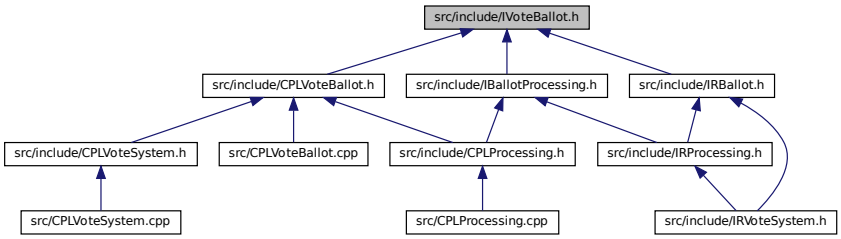
Copyright (c) 2023

6.14 src/include/IVoteBallot.h File Reference

`#include <vector>`
Include dependency graph for IVoteBallot.h:



This graph shows which files directly or indirectly include this file:



Classes

- class IVoteBallot

  The abstract class where all VoteBallots are inherited from.

6.14.1 Detailed Description

Author

Michael Vang (vang2891@umn.edu)

Version

0.1

Date

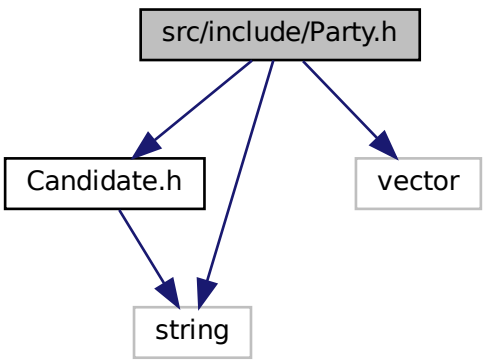
2023-03-25

Copyright

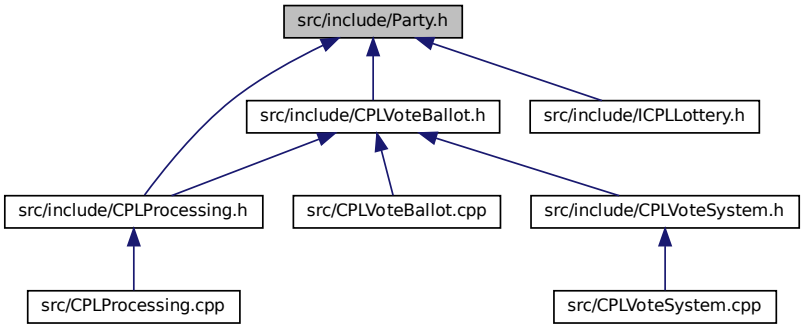
6.15 src/include/Party.h File Reference

```
#include "Candidate.h"
#include <string>
#include <vector>
```

Include dependency graph for Party.h:



This graph shows which files directly or indirectly include this file:



Classes

- class Party

  A class representing a political party with candidate information and seat limits.

6.15.1 Detailed Description

Author

Matin Horri (horri031@umn.edu)

Version

0.1

Date

2023-03-25

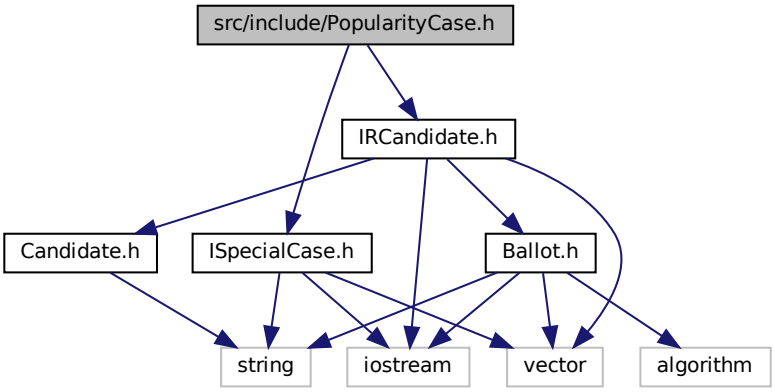
Copyright

Copyright (c) 2023

6.16 src/include/PopularityCase.h File Reference

```
#include "ISpecialCase.h"
#include "IRCandidate.h"
```

Include dependency graph for PopularityCase.h:



Classes

- class PopularityCase

  A class representing a popularity special case implementation.

6.16.1 Detailed Description

Author

Matin Horri (horri031@umn.edu)

Version

0.1

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