Data Members

The `Menu` class has two data members.

- `string m_name;` – The name of the menu.

- `LinkedList<string> m_item;` – The list of menu items.

- `LinkedList<char> m_abbr;` – The list of abbreviations of menu items.

Member Functions

Constructors

- `Menu();`

  Constructs an empty `Menu` with no menu items.

- `Menu(const string& nm, string it[], char ab[], int sz);`

  Constructs a `Menu` with name `nm`, with the menu items listed in `it`, and with the abbreviations listed in `ab`. The size of the arrays `it` and `ab` is `sz`.

Inspectors

- `string name() const;`

  Returns the name of the menu.

- `string item(int i) const;`

  Returns the menu item in position `i`.

- `char abbr(int i);`

  Returns the menu abbreviation in position `i`.

- `int size() const;`

  Returns the number of items in the menu.

Mutators

- `void addItem(string it, char ab, int pos);`

  Adds the menu item `it`, with abbreviation `ab`, in position `pos` of the menu.

- `void appendItem(string it, char ab);`

  Appends the menu item `it`, with abbreviation `ab`, to the end of the menu.

- `void deleteItem(int pos);`

  Deletes the menu item in position `pos` from the menu.

- `void replaceItem(string it, char ab, int pos);`

  Replaces the menu item in position `pos` with the menu item `it`, and gives it the abbreviation `ab`.

- `void moveItem(int old_pos, int new_pos);`

  Moves the menu item in position `old_pos` to position `new_pos`.

Facilitators

- `void output(ostream& out) const;`

  Writes a `Menu` to the output stream. The name of the menu is displayed on the first line, followed by the list of menu items on the successive lines. Each item is preceded by its abbreviation in parentheses. For example, the "Quit" menu item might appear as

      (Q) Quit

Other Member Functions

- `char getChoice() const;`

  Gets the user's menu choice. The user enters one character matching the abbreviation of one of the menu items. This function returns that character, in upper case. If the user's choice is invalid, then this function returns the blank-space character.

Non-member Operators

- `ostream& operator<<(ostream& out, const Menu& m)`

  Writes a menu to the output stream as described in the `output()` function.