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Project: Restaurant Functions

Description
    User picks menu items, to generate a total cost. Then tax and tip are added in.   Finally the bill
is paid and change returned

Scope

- Limited to user input. Leverages while loop and sentinel for multiple inputs.
- Input file expects the first field to be the studentID, then a fixed amount of scores.

Header files
    iostream
        Used for cin/cout
    math
        Used for basic arithmetic
    iomanip
        Used to format console output
    limits
        Needed for numeric_limits
    string
        Used for string variables

Functions
        double getAmtTendered(string questionToAsk, double totalBill);
            Gets amount tendered and does input validation
        int getInput(string questionToAsk, string errorMsg, int lowRange, int highRange);
            Generic input function. Does input validation and returns int
        void displayBill(double bill, double totalBill, double totalTax, double totalTip);
            Displays bill using already calculated values
        void displayChange(double amtTendered, double totalBill);
            Calculates change and displays information about amount tendered/change due
        double itemCost(int itemChoice);
            Returns cash value of menu choice
        void pauseProgram();
            Pauses program until user hits enter
        double getOrder();
            Gets users order and returns the summarized bill
        void displayMenu();
            Displays choice menu

Constants
    double taxRate
        sales tax rate to apply to bill
    double tipPercentage
        amount to tip on bill

Input variables
    int menuChoice
        int value that corresponds to a menu item
    double amtTendered
        Amount tendered towards bill

Output Variables
    double totalTax
        Total tax paid on bill
    double totalTip
        Total tip paid on bill
    double totalBill
        Total bill with tax and tip
    double bill
        Total bill prior to tax and tip being added
    double amtTendered
        Amount tendered to pay bill
    double changeDue
        Change due after paying bill

Program Workflow

```
                                    ┌─────────┐
                                    │ MenuItem =8 │
                                    └─────────┘
                                         │
                                        YES
                                         │
        ┌────────────────────────────────────────────────────────────┐
        │                                            Calculate Bill   │
        │   ┌──────────────┐    ┌──────────────┐    ┌──────────────┐  │
        │   │ totalTax= sumItems │ │ totalTip = sumItems │ │ totalBill = sumItems │ │
        │   │   * TaxRate    │→  │   *tipPercent  │→  │  + totalTip + totalTax │ │
        │   └──────────────┘    └──────────────┘    └──────────────┘  │
        └────────────────────────────────────────────────────────────┘
                                         │
                                    ┌─────────┐
                                    │   Get    │
                                    │ cashTendered │
                                    └─────────┘
                                         │
         NO                         ┌─────────┐
        ┌──────────────────────────│ cashTendered >= │
                                    │   totalBill   │
                                    └─────────┘
                                         │
                                        YES
                                         │
                                    ┌─────────┐
                                    │ changeDue = │
                                    │ cashTendered − │
                                    │   totalBill   │
                                    └─────────┘
                                         │
        ┌────────────────────────────────────────────┐
        │ Total Before Tax: $sumItems                 │
        │ Total Tax: $totalTax                        │
        │ TotalTip: $totalTip                         │
        │ Total Bill: $totalBill                      │
        │ Cash Tendered: $cashTendered                │
        │ Change Due: $changeDue                      │
        └────────────────────────────────────────────┘
                                         │
                                    ┌─────────┐
                                    │   END    │
                                    └─────────┘
```