//

// main.c

// Chpt6PP1

//

// Created by Randy McMillan on 10/15/13.

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\* 1. Write a program for an automatic teller machine that dispenses money.

\* The user should enter the amount desired (a multiple of 10 dollars) and the machine dispenses this amount using the least number of bills. The bills dis- pensed are 50s, 20s, and 10s. Write a function that determines how many of each kind of bill to dispense.

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#include <stdio.h>

float amount;

int fifties, twenties, tens, fives, ones;

float cents;

int \*fiftyDollarBills,\*twentyDollarBills,\*tenDollarBills,\*fiveDollarBills,\*oneDollarBills;

void inputAmount();

void parseBills(float);

void displayTotals(float);

void myMain();

int main(int argc, const char \*argv[])

{

//pointer usage per chapter subject

//not really neccesary but...

fiftyDollarBills = &fifties;

twentyDollarBills = &twenties;

tenDollarBills = &tens;

fiveDollarBills = &fives;

oneDollarBills = &ones;

myMain();

return 0;

}

void myMain()

{

amount = 0;

fifties = 0;

twenties = 0;

tens = 0;

fives = 0;

ones = 0;

cents = 0;

// printf("PLease...");

// scanf("%f",&amount);

// printf("amount %f",amount);

inputAmount();

}

void inputAmount()

{

printf("Please enter amount to be dispensed --> ");

scanf("%f", &amount);

// printf("amount %.2f\n",amount);

parseBills(amount);

}

void parseBills(float a)

{

// printf("parseBills\n");

// printf("%.2f\n",a);

if (a / 50 >= 1) {

\*fiftyDollarBills = a / 50;

//printf("fifties = %i\n", fifties);

a = a - (\*fiftyDollarBills \* 50);

//printf("%f\n", a);

}

if (a / 20 >= 1) {

\*twentyDollarBills = a / 20;

//printf("twenties = %i\n", twenties);

a = a - (\*twentyDollarBills \* 20);

//printf("%f\n", a);

}

if (a / 10 >= 1) {

\*tenDollarBills = a / 10;

//printf("tens = %i\n", tens);

a = a - (\*tenDollarBills \* 10);

//printf("%f\n", a);

}

if (a / 5 >= 1) {

\*fiftyDollarBills = a / 5;

//printf("fives = %i\n", fives);

a = a - (\*fiftyDollarBills \* 5);

//printf("%f\n", a);

}

if (a / 1 >= 1) {

\*oneDollarBills = a / 1;

//printf("ones = %i\n", ones);

a = a - (\*oneDollarBills \* 1);

//printf("%f\n", a);

}

displayTotals(a);

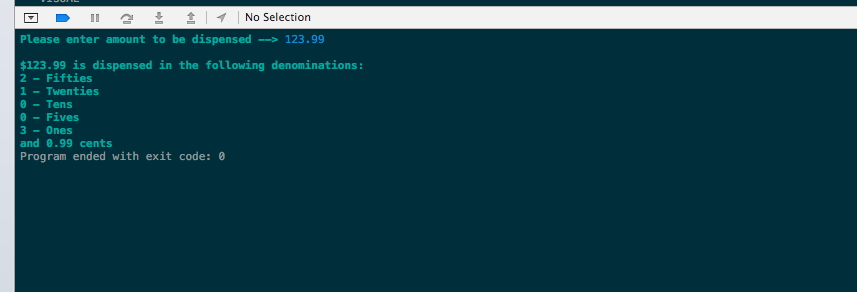
}

void displayTotals(float a){

//printf("%.2lf",a);

printf("\n$%.2lf is dispensed in the following denominations:\n%i - Fifties\n%i - Twenties\n%i - Tens\n%i - Fives\n%i - Ones\nand %.2lf cents\n",amount,\*fiftyDollarBills,\*twentyDollarBills,\*tenDollarBills,\*fiveDollarBills,\*oneDollarBills,a);

}



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// main.c

// Chpt6PP3

//

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\* 3. Write a program to dispense change. The user enters the amount paid and the amount due. The program determines how many dollars, quarters, dimes, nickels, and pennies should be given as change. Write a function with four output parameters that determines the quantity of each kind of coin.

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#include <stdio.h>

#include <math.h>

float amount;

int hundreds, fifties, twenties, tens, fives, ones, quarters, dimes, nickels, pennies;

float cents;

int \*hundredDollarBills, \*fiftyDollarBills, \*twentyDollarBills, \*tenDollarBills, \*fiveDollarBills, \*oneDollarBills, \*quarterDollars, \*tenthDollars, \*twentiethDollars, \*hundrethsDollars;

float amountPaid, amountDue, difference, change;

void inputDue();

void inputPaid();

void calcDifference(float d, float p);

void calcChange(float a);

void displayTotals(float);

void myMain();

int main(int argc, const char \*argv[])

{

// pointer usage per chapter subject

// not really neccesary but...

hundredDollarBills = &hundreds;

fiftyDollarBills = &fifties;

twentyDollarBills = &twenties;

tenDollarBills = &tens;

fiveDollarBills = &fives;

oneDollarBills = &ones;

quarterDollars = &quarters;

tenthDollars = &dimes;

twentiethDollars = &nickels;

hundrethsDollars = &pennies;

myMain();

return 0;

}

void myMain()

{

inputDue();

inputPaid();

calcDifference(amountDue, amountPaid);

calcChange(difference);

}

void inputDue()

{

printf("Please input the amount due ---> ");

scanf("%f", &amountDue);

}

void inputPaid()

{

printf("Please input the amount paid ---> ");

scanf("%f", &amountPaid);

}

void calcDifference(float d, float p)

{

difference = d - p;

if (d < p) {

//convert to absolute value before sending to next function

difference = fabs(difference);

} else {

// a bit of error checking

printf("Please reenter the amounts.\n");

myMain();

}

}

void calcChange(float a)

{

// a = fabsf(a);

// printf("calcChange\n");

// printf("%.2f\n",a);

if (a / 100 >= 1) {

\*hundredDollarBills = a / 100;

printf("hundreds = %i\n", hundreds);

a = a - (\*hundredDollarBills \* 100);

printf("%f\n", a);

}

if (a / 50 >= 1) {

\*fiftyDollarBills = a / 50;

printf("fifties = %i\n", fifties);

a = a - (\*fiftyDollarBills \* 50);

printf("%f\n", a);

}

if (a / 20 >= 1) {

\*twentyDollarBills = a / 20;

printf("twenties = %i\n", twenties);

a = a - (\*twentyDollarBills \* 20);

printf("%f\n", a);

}

if (a / 10 >= 1) {

\*tenDollarBills = a / 10;

printf("tens = %i\n", tens);

a = a - (\*tenDollarBills \* 10);

printf("%f\n", a);

}

if (a / 5 >= 1) {

\*fiftyDollarBills = a / 5;

printf("fives = %i\n", fives);

a = a - (\*fiftyDollarBills \* 5);

printf("%f\n", a);

}

if (a / 1 >= 1) {

\*oneDollarBills = a / 1;

printf("ones = %i\n", ones);

a = a - (\*oneDollarBills \* 1);

printf("%f\n", a);

}

if (a / 1 < 1) {

printf("small change - %lf\n",a);

if (a / .25 >= 1) {

\*quarterDollars = a / .25;

printf("quarters = %i\n", quarters);

a = a - (\*quarterDollars \* .25);

printf("%f\n", a);

}

if (a / .10 >= 1) {

\*tenthDollars = a / .10;

printf("dimes = %i\n", dimes);

a = a - (\*tenthDollars \* .10);

printf("%f\n", a);

}

if (a / .05 >= 1) {

\*twentiethDollars = a / .05;

printf("nickels = %i\n", nickels);

a = a - (\*twentiethDollars \* .05);

printf("%f\n", a);

}

if (a / .01 >= 1) {

\*hundrethsDollars = a / .01;

printf("pennies = %i\n", pennies);

a = a - (\*hundrethsDollars \* .01);

printf("%f\n", a);

}

}

displayTotals(a);

}

void displayTotals(float a){

//printf("%.2lf",a);

printf("\n$%.2lf is dispensed in the following denominations:\n%i - Hundreds\n%i - Fifties\n%i - Twenties\n%i - Tens\n%i - Fives\n%i - Ones\n%.1i - Quarters\n%.1i - Dimes\n%.1i - Nickles\n%.1i.01 - Pennies\n",amount,\*hundredDollarBills,\*fiftyDollarBills,\*twentyDollarBills,\*tenDollarBills,\*fiveDollarBills,\*oneDollarBills,\*quarterDollars,\*tenthDollars,\*twentiethDollars,\*hundrethsDollars);

}

