//////////////////

//Kelsey Segren

//EX01\_01

//////////////////

#include<iostream>

using namespace std;

#include <ctime>

int main(void) {

//a) hasPassedTest initialized to true

int hasPassedTest = true;

//b) x and y are initialized to random numbers then the greater number is outputted

int x, y;

srand(time(NULL));

x = rand() % 100 + 1;

y = rand() % 100 + 1;

if (x >= y)

cout << x << " is greater than or equal to " << y << endl;

else

cout << x << " is not greater than or equal to " << y << endl;

cout << endl;

//c)asks user to enter a number then output whether it is less than 100

int numberOfShares;

cout << "Enter a value: ";

cin >> numberOfShares;

if (numberOfShares < 100)

cout << numberOfShares << " is less than 100. " << endl;

else

cout << numberOfShares << " is not less than 100. " << endl;

cout << endl;

//d)asks user for box width and book length then determines if the box width is evenly divisible by the book width

int boxWidth, bookWidth;

cout << "Enter a box width and a book width: ";

cin >> boxWidth >> bookWidth;

if (boxWidth % bookWidth == 0)

cout << boxWidth << " is evenly divisible by " << bookWidth << endl;

else

cout << boxWidth << " is not evenly divisible by " << bookWidth << endl;

//e)asks user for shelf life of a box of chocolates and tempereature

//then subtracts 4 to the shelf life if the temp is greater than 90

int shelfLife, temp;

cout << "What is the shelf life of the box of chocolates? " << endl;

cin >> shelfLife;

cout << "What is the temperature outside? " << endl;

cin >> temp;

if (temp > 90)

cout << "Shelf life = " << shelfLife - 4 << endl;

else

cout << "Shelf Life = " << shelfLife;

return 0;

}

///////////////////

//Kelsey Segren

//EX01\_02

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#include <iostream>

#include <string>

using namespace std;

//function prototype

void ex02();

int main() {

//calls function ex02

ex02();

return 0;

}

void ex02() {

//a) asks user for length and height of right triangle then outputs the hypotenuse

double length, height, hypotenuse;

cout << "Enter the length and height of a right triangle: ";

cin >> length >> height;

hypotenuse = sqrt((length\*length) + (height\*height));

cout << "The hypotentuse of the right triangle is " << hypotenuse << endl << endl;

//b)if user enters y then yes is outputted, if user enters n then no is outputted

char y, n, input;

cout << "Enter y or n: ";

cin >> input;

if (input == 'y')

cout << "yes";

else

cout << "no" << endl;

//c)initialize char variable to tab character

char TAB = 9;

cout << TAB;

//d)asks user for their mailing address

string mailingAddress;

cout << "Enter your mailing address: " << endl;

cin >> mailingAddress;

//e)intitialize string to empty string

string s = "";

}

////////////

//Kelsey Segren

//EX01\_03

//////////////

#include <iostream>

#include <ctime>

using namespace std;

//function prototypes

void ex03();

int sum(int a, int b);

int doubleInteger(int x);

int addOne(int&);

int main() {

//calls ex03 function

ex03();

//f) takes two random integers and returns the sum of them

int a, b;

srand(time(NULL));

a = rand() % 100 + 1;

b = rand() % 100 + 1;

//call the sum function to return the sum of the random numbers a and b

int c = sum(a, b);

cout << a << " + " << b << " = " << c << endl << endl;

//g)calls function that adds one to its parameter, passes integer by reference

//intitalized parameter y to 5 so it should add one to make y = 6

int y= 5;

int add = addOne(y);

cout << add << endl;

return 0;

}

void ex03() {

//a)asks user for a number between 1 and 10 and keeps asking until a valid number is entered

int x;

do {

cout << "Enter a number: ";

cin >> x;

} while ((x > 10) || (x < 1));

//b)uses the number entered in part a) to output x^3

int cube = x\*x\*x;

cout << endl << cube << endl;

//c)do-while loop to enter number of astericks using the value from a)

int num = 0;

do {

cout << "\* ";

num++;

} while (num < x);

cout << endl;

//d) outputs all the even numbers between 0-40

int y;

for (y = 0; y <= 40; y += 2) {

cout << y << " ";

}

cout << endl << endl;

//e) calls doubleInteger function to double the value from part a)

int z = doubleInteger(x);

cout << z << endl;

}

int sum(int a, int b)

{

return (a + b);

//returns the sum of a and b

}

int doubleInteger(int x) {

return (x \* 2);

// returns the value from part a) multipled by 2

}

int addOne(int& y) {

y = y + 1;

return y;

//returns y incremented by 1

}

/////////////////

//Kelsey Segren

//EX01\_04

///////////////

#include <iostream>

using namespace std;

//function prototypes

void ex04();

void printArray(int values[], int size);

void partD();

int main() {

//calls function ex04 then function for part d)

ex04();

partD();

return 0;

}

void ex04() {

//a)asks the user for 3 integers and stores them in an array

const int size = 3;

int values[size];

cout << "Please enter 3 numbers." << endl;

//c)calls the function printArray to print the numbers entered in part a

printArray(values, size);

for (int i = 0; i < size; i++)

{

cout << values[i] << " ";

}

cout << endl;

//b)calculates the sum and product of the numbers in the array

cout << endl << "The sum of these numbers is: " << values[0] + values[1] + values[2] << endl;

cout << "The product of these numbers is: " << values[0] \* values[1] \* values[2] << endl << endl;

}

void printArray(int values[], int size) {

for (int i = 0; i < size; i++)

{

cin >> values[i];

}

cout << endl;

//c) prints the numbers stored in the array from part a)

cout << "You entered the numbers: ";

}

void partD() {

//d) asks the user for a value then outputs the result of p = a[2] \* (x\*x) + (a[1] \* x) + a[0];

cout << "Enter a value: ";

int x;

cin >> x;

int a[3] = { 1, 2, 3 };

int p = a[2] \* (x\*x) + (a[1] \* x) + a[0];

cout << p << endl;

}