Lab test 1

Name: Franz Tamani

Student ID: 102114822

Source Code (Copy and paste your code below)

#include <iostream>

#include <string>

#include <cstdlib>

#include <ctime>

#include <iomanip>

using namespace std;

char menu()

{

bool valid\_input = false;

char choice;

cout << "Is it a rectangle or square?" << endl;

cout << "Type R for rectangle" << endl;

cout << "Type S for Square" << endl;

cout << "Type E to exit" << endl;

cin >> choice;

while (!valid\_input)

{

switch (choice)

{

default:

cout << "Invalid choice, please try again" << endl;

cin >> choice;

break;

case 'R':

case 'r':

valid\_input = true;

return 2;

break;

case 'S':

case 's':

valid\_input = true;

return 3;

break;

case 'E':

case 'e':

valid\_input = true;

return 4;

break;

}

}

}

//Generates random bool between min and max

double random\_value\_generator(bool min, bool max)

{

return fabs(((double)rand() / 1000) \* (max - min) + min);

}

double rectangle\_area(double length, double breadth)

{

return length \* breadth;

}

double rect\_circumference(double length, double breadth)

{

return 2 \* (length + breadth);

}

double square\_area(double length)

{

return length \* length;

}

double square\_circumference(double length)

{

return 4 \* length;

}

int main()

{

int menu\_input = 1; //1 = default, 2 = Rectangle, 3 = Square, 4 = Exit

string cm\_or\_m, unit;

char choice;

bool valid\_input = false;

double length, breadth;

srand(time(0));

while (menu\_input != 4)

{

switch (menu\_input)

{

default:

menu\_input = menu();

if (menu\_input == 4)

break;

//Asks the Unit

valid\_input = false;

while (!valid\_input)

{

cout << "Is your unit cm or m ?" << endl;

cin >> cm\_or\_m;

if (cm\_or\_m == "cm" || cm\_or\_m == "CM")

{

unit = "cm";

valid\_input = true;

}

else if (cm\_or\_m == "m" || cm\_or\_m == "M")

{

unit = "m";

valid\_input = true;

}

else

{

cout << "Wrong unit, give either cm or m" << endl;

}

}

case 2:

length = random\_value\_generator(5.0, 15.0);

breadth = random\_value\_generator(5.0, 15.0);

cout << "The lenght and breadth given by random generator are: " << length << unit

<< " and " << breadth << unit << endl;

cout << "Do you want to calculate the are or circumference of the rectangle?" << endl;

cout << "Enter A for area and C for circumference" << endl;

cin >> choice;

valid\_input = false;

while (!valid\_input)

{

switch (choice)

{

default:

cout << "Wrong choice, re-enter the choice" << endl;

cin >> choice;

break;

case 'A':

case 'a':

cout << "The area of the rectangle is " << setprecision(2) << rectangle\_area(length, breadth) << unit << "^2\n" << endl;

menu\_input = 0;

valid\_input = true;

break;

case 'C':

case 'c':

cout << "The circumference of the rectangle is " << setprecision(2) << rect\_circumference(length, breadth) << unit << "\n" << endl;

menu\_input = 0;

valid\_input = true;

break;

}

}

break;

case 3:

length = random\_value\_generator(5.0, 15.0);

cout << "The lenght given by random generator is: " << length << unit << endl;

cout << "Do you want to calculate the are or circumference of the rectangle?" << endl;

cout << "Enter A for area and C for circumference" << endl;

cin >> choice;

valid\_input = false;

while (!valid\_input)

{

switch (choice)

{

default:

cout << "Wrong choice, re-enter the choice" << endl;

cin >> choice;

break;

case 'A':

case 'a':

cout << "The area of the square is " << setprecision(2) << square\_area(length) << unit << "^2\n" << endl;

menu\_input = 0;

valid\_input = true;

break;

case 'C':

case 'c':

cout << "The circumference of the square is " << setprecision(2) << square\_circumference(length) << unit << "\n" << endl;

menu\_input = 0;

valid\_input = true;

break;

}

}

break;

case 4:

break;

}

}

}

Screenshots of output window

