

Homework 1

Brandon Hosley

Mike Davis

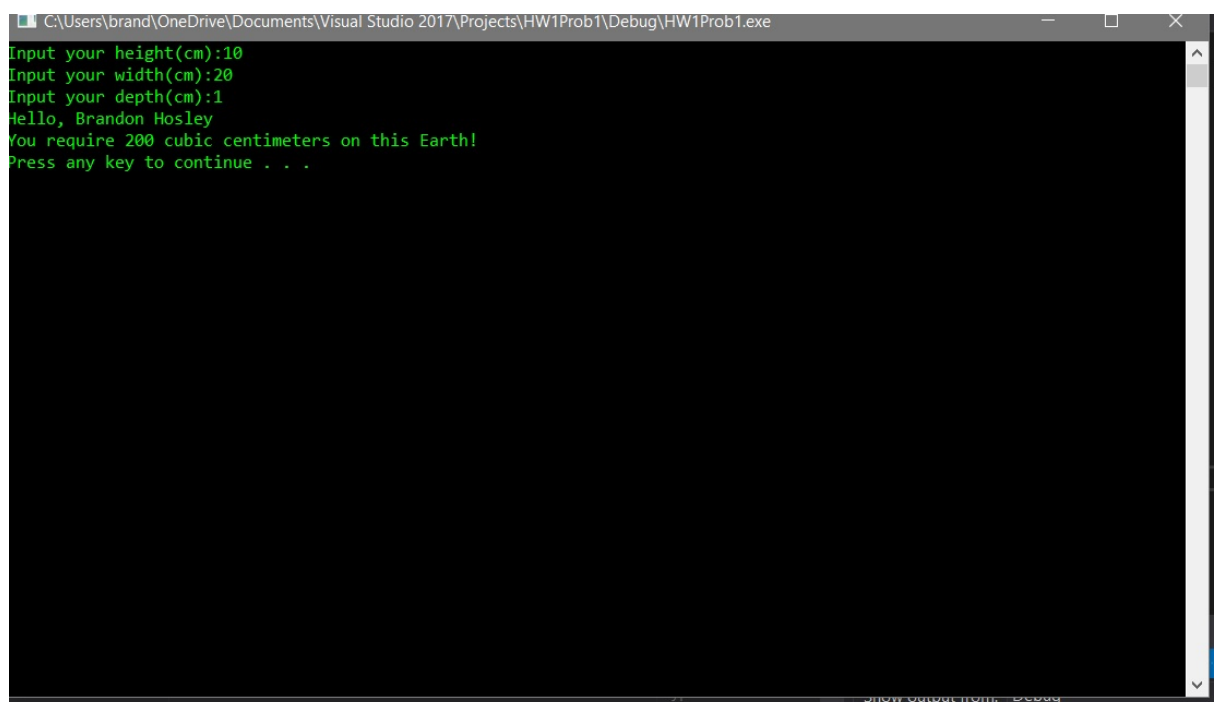
Homework 1

1

```
/*CSC - Homework 1 - Problem 1
Author: Brandon Hosley
Date: 2018 08 28
*/

#include <iostream>
using namespace std;

int main()
{
    int height;
    int width;
    int depth;
    cout << "Input your height(cm):";
    cin >> height;
    cout << "Input your width(cm):";
    cin >> width;
    cout << "Input your depth(cm):";
    cin >> depth;
    int volume = height * width * depth;
    cout << "Hello, Brandon Hosley" << endl;
    cout << "You require " << volume << " cubic centimeters on this Earth!\n";
    system("PAUSE");
    return 0;
}
```



```
C:\Users\brand\OneDrive\Documents\Visual Studio 2017\Projects\HW1Prob1\Debug\HW1Prob1.exe
Input your height(cm):10
Input your width(cm):20
Input your depth(cm):1
Hello, Brandon Hosley
You require 200 cubic centimeters on this Earth!
Press any key to continue . . .
```

2 a)

```
/*CSC - Homework 1 - Problem 2
Author: Brandon Hosley
Date: 2018 08 28
*/

#include "stdafx.h"
#include <iostream>
#include <string>
using namespace std;

string username = "Brandon Hosley";

int rectArea(int len, int wid)
{
    return len * wid;
}

int main()
{
    int houseLength;
    int houseWidth;
    int garageLength;
    int garageWidth;
    int houseArea;
    int garageArea;
    double percent;
    cout << "Length of House (ft):";
    cin >> houseLength;
    cout << "Width of House (ft):";
    cin >> houseWidth;
    cout << "Length of Garage (ft):";
    cin >> garageLength;
    cout << "Width of Garage (ft):";
    cin >> garageWidth;

    houseArea = rectArea(houseLength, houseWidth);
    garageArea = rectArea(garageLength, garageWidth);
    percent = ( 1.0 * garageArea / (garageArea + houseArea)) * 100; // 1.0 necess

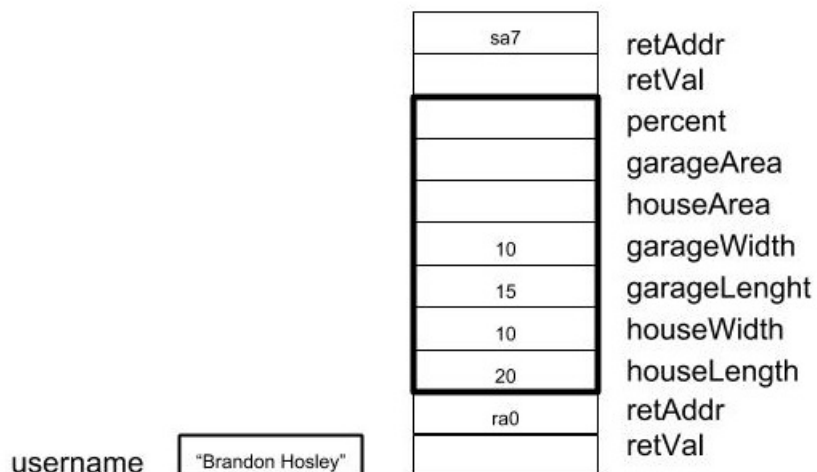
    cout << "The house is " << houseArea << " square feet." << endl;
    cout << "The garage is " << garageArea << " square feet." << endl;
    cout << username << "'s garage is " << percent << " percent of their house."
    system("PAUSE");
    return 0;
}
```

```

C:\Users\brand\OneDrive\Documents\Visual Studio 2017\Projects\HW1Prob1\D...
Length of House (ft):120
Width of House (ft):10
Length of Garage (ft):60
Width of Garage (ft):10
The house is 1200 square feet.
The garage is 600 square feet.
Brandon Hosley's garage is 33.3333 percent of their house.
Press any key to continue . . .

```

2 b)



Heap and stack when rectArea() is called. Nearly everything is placed in the stack due to my decision to declare variables within the main() method.

3 a)

```

/*CSC - Homework 1 - Problem 3
Author: Brandon Hosley
Date: 2018 08 28
*/

```

```

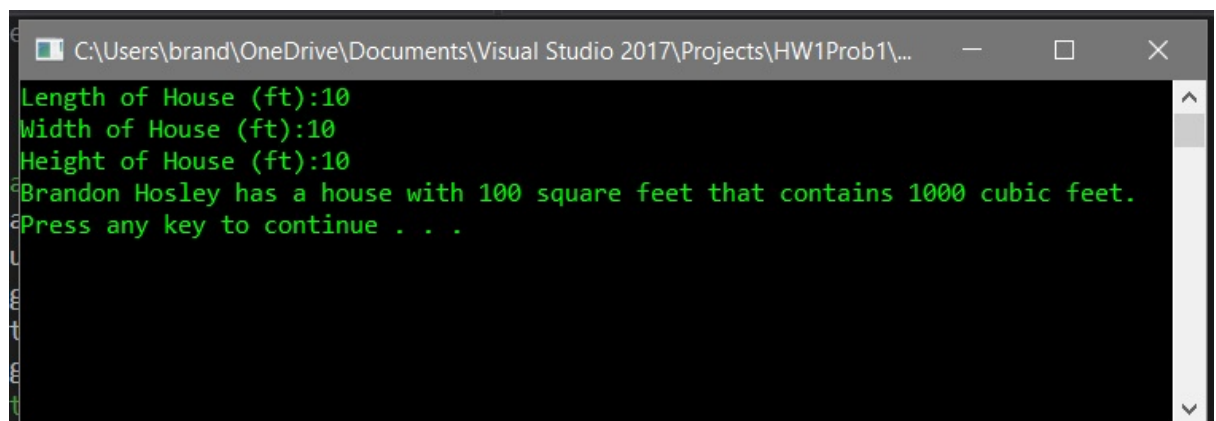
#include "stdafx.h"
#include <iostream>
#include <string>
using namespace std;

```

```
string username = "Brandon Hosley";

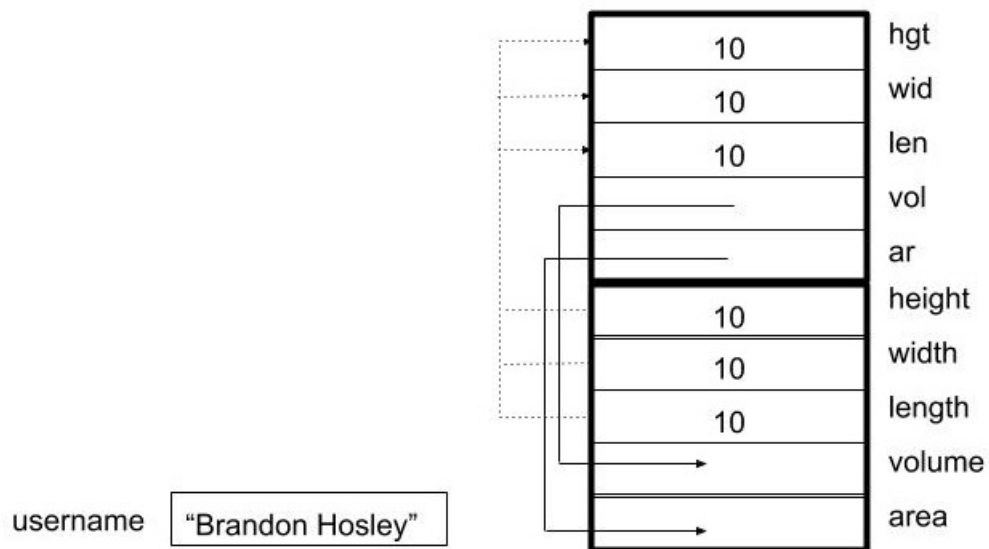
void calculate(int& ar, int& vol, int len, int wid, int hgt)
{
    ar = len * wid;
    vol = len * wid * hgt;
}

int main()
{
    // variables
    int area;
    int volume;
    int length;
    int width;
    int height;
    // input
    cout << "Length of House (ft):";
    cin >> length;
    cout << "Width of House (ft):";
    cin >> width;
    cout << "Height of House (ft):";
    cin >> height;
    //output
    calculate(area, volume, length, width, height);
    cout << username
        << " has a house with " << area
        << " square feet that contains " << volume
        << " cubic feet." << endl;
    system("PAUSE");
    return 0;
}
```



```
C:\Users\brand\OneDrive\Documents\Visual Studio 2017\Projects\HW1Prob1\...
Length of House (ft):10
Width of House (ft):10
Height of House (ft):10
Brandon Hosley has a house with 100 square feet that contains 1000 cubic feet.
Press any key to continue . . .
```

3 b)



Heap and stack when calculate() is called. Solid lines represent call by reference (Pointers). Dotted lines represent call by value.

4 a)

```

/*CSC - Homework 1 - Problem 4
Author: Brandon Hosley
Date: 2018 08 28
*/

#include "stdafx.h"
#include <iostream>
#include <string>
using namespace std;

string username = "Brandon Hosley";

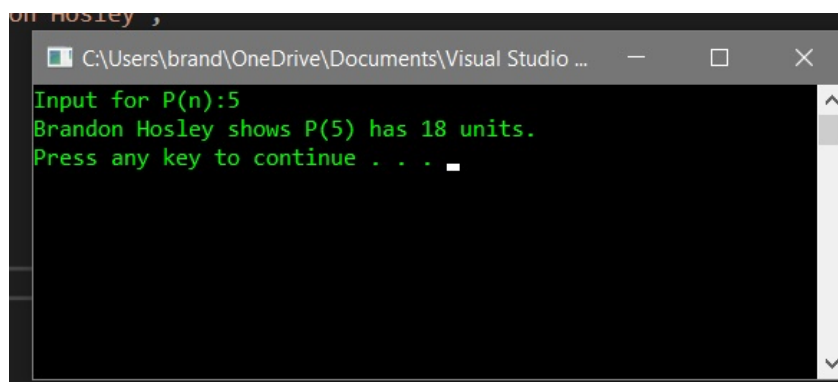
int recursiveP(int i)
{
    if (i == 1)
    {
        return 3;
    }
    else if (i == 2)
    {
        return 4;
    }
    else

```

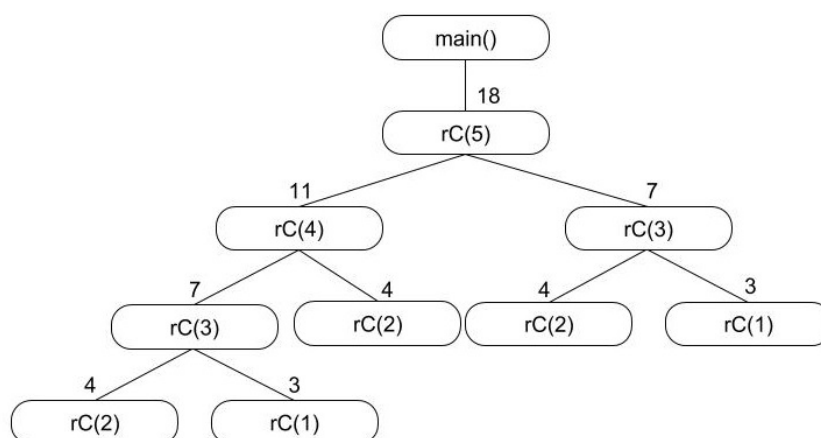
```

    {
        return recursiveP(i - 1) + recursiveP(i - 2);
    }
}
int main()
{
    // variables
    int input;
    int result;
    // input
    cout << "Input for P(n):";
    cin >> input;
    // output
    result = recursiveP(input);
    cout << username
        << " shows P(" << input
        << ") has " << result
        << " units." << endl;
    system("PAUSE");
    return 0;
}

```



4 b)



References

Warford, J. (2009). *Computer systems* (4th ed.). Jones and Bartlett.