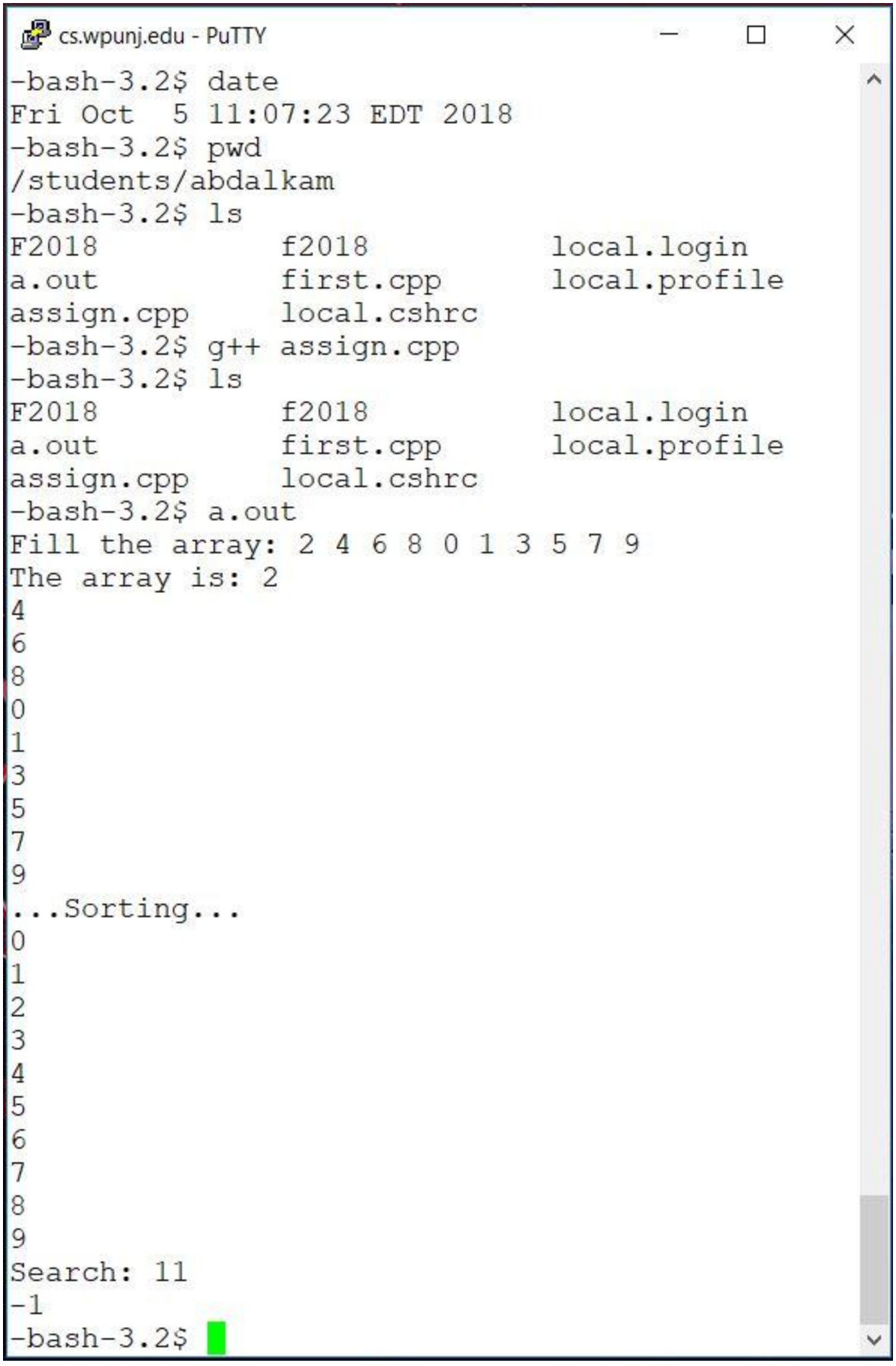
```
//              Course:  CS2400-60 Computer Science 2
//               Name:  Abdalkarim, Marina
//      Assignment:  Programming Assignment P3.1
//    Date assigned: 10/2/18
//           Date due: 10/11/17
//  Date handed in: 10/11/17
//             Remark: The program tests struct program
#include <iostream>
using namespace std;
void binarySearch(int score[], int n, int key);
void selectionSort(int score[], int n);
void fill_array(int score[], int n);
void display_array(int score[], int n);
int main()
{
        int find;
        const int SIZE = 10;
        int a[SIZE];
        cout << "Fill the array: ";
        fill_array(a, SIZE);
        cout << "The array is: ";
        display_array(a, SIZE);
        selectionSort(a, SIZE);
        cout << "...Sorting..." << endl;
        display_array(a, SIZE);
        cout << "Search: ";
        cin >> find;
        binarySearch(a, SIZE, find);
   return 0;
}
void fill_array(int score[], int n)
{
        for (int i = 0; i < n; i++)
                cin >> score[i];
}
void display_array(int score[], int n)
{
        for (int i = 0; i < n; i++)
                cout << score[i] << endl;
```

```
}
void selectionSort(int score[], int n)
{
	for (int j = 0; j < n - 1; j++)
	{
		int Min = j;
		for (int i = j + 1; i < n; i++)
			if (score[i] < score[Min])
				Min = i;
		if (Min != j)
			swap(score[j], score[Min]);
	}
}
void binarySearch(int score[], int n, int key)
{
	int mid;
	bool a = false;
	mid = score[n / 2];
	if (mid == key)
	{
		cout << "x[" << mid - 1 << "]" << endl;
		a = true;
	}
	else
	{
		for (int i = (n / 2); i > 0; i--)
		{
			if (score[i] == key)
			{
				cout << "x[" << i << "]" << endl;
				a = true;
			}
			else
				a = false;
		}
		if (a == false)
			cout << "-1" << endl;
	}
}
```


cs.wpunj.edu - PuTTY
-bash-3.2$ date
Fri Oct 5 11:01:45 EDT 2018
-bash-3.2$ pwd
/students/abdalkam
-bash-3.2$ ls
F2018 assign.cpp first.cpp local.login
a.out f2018 local.cshrc local.profile
-bash-3.2$ g++ assign.cpp
-bash-3.2$ ls
F2018 assign.cpp first.cpp local.login
a.out f2018 local.cshrc local.profile
-bash-3.2$ a.out
Fill the array: 2 4 6 8 0 1 3 5 7 9
The array is: 2
4
6
8
0
1
3
5
7
9
...Sorting...
0
1
2
3
4
5
6
7
8
9
Search: 2
x[2]
-1
-bash-3.2$


cs.wpunj.edu - PuTTY
-bash-3.2$ date
Fri Oct 5 11:07:23 EDT 2018
-bash-3.2$ pwd
/students/abdalkam
-bash-3.2$ ls
F2018 f2018 local.login
a.out first.cpp local.profile
assign.cpp local.cshrc
-bash-3.2$ g++ assign.cpp
-bash-3.2$ ls
F2018 f2018 local.login
a.out first.cpp local.profile
assign.cpp local.cshrc
-bash-3.2$ a.out
Fill the array: 2 4 6 8 0 1 3 5 7 9
The array is: 2
4
6
8
0
1
3
5
7
9
...Sorting...
0
1
2
3
4
5
6
7
8
9
Search: 11
-1
-bash-3.2$

```
//             Course:  CS2400-60 Computer Science 2
//               Name:  Abdalkarim, Marina
//      Assignment:  Programming Assignment P3.2
//    Date assigned:  10/2/18
//           Date due:  10/11/17
//  Date handed in:  10/11/17
//             Remark:  The program calculates totals
#include <iostream>
#include <iomanip>
#include <cmath>
using namespace std;
void fill2DArray(int x[][5], int z, int y);
void computeQtrlySums(int x[][5], int a[], int z, int y, int b);
void computeBranchSums(int x[][5], int a[], int z, int y, int b);
void displayYearlySalesReport(int x[][5], int a[], int d[], int z, int y);
int main()
{
	const int row = 4, col = 5, quart = 4, bran = 5;
	int sales[row][col];
	int qtrlySum[quart];
	int branchSum[bran];
	fill2DArray(sales, row, col);
	computeQtrlySums(sales, qtrlySum, row, col, quart);
	computeBranchSums(sales, branchSum, row, col, bran);
	displayYearlySalesReport(sales, qtrlySum, branchSum, row, col);
	return 0;
}
void fill2DArray(int x[][5], int z, int y)
{
	cout << "Enter up to " << z << " rows of integers; " << endl;
	cout << "Each row may contain up to " << y << " numbers." << endl;
	for (int r = 0; r < z; r++)
	{
		cout << "Enter numbers for row #" << r + 1 << ": ";
		for (int c = 0; c < y; c++)
			cin >> x[r][c];
	}
}
void computeQtrlySums(int x[][5], int a[], int z, int y, int b)
```

```
{
	int sum1 = 0, sum2 = 0, sum3 = 0, sum4 = 0;
	for (int c = 0; c < y; c++)
	{
			sum1 += x[0][c];
			sum2 += x[1][c];
			sum3 += x[2][c];
			sum4 += x[3][c];
	}
	a[0] = sum1;
	a[1] = sum2;
	a[2] = sum3;
	a[3] = sum4;
}
void computeBranchSums(int x[][5], int a[], int z, int y, int b)
{
	int sum1 = 0, sum2 = 0, sum3 = 0, sum4 = 0, sum5 = 0;
	for (int r = 0; r < z; r++)
	{
		sum1 += x[r][0];
		sum2 += x[r][1];
		sum3 += x[r][2];
		sum4 += x[r][3];
		sum5 += x[r][4];
	}
	a[0] = sum1;
	a[1] = sum2;
	a[2] = sum3;
	a[3] = sum4;
	a[4] = sum5;
}
void displayYearlySalesReport(int x[][5], int a[], int d[], int z, int y)
{
	for (int r = 0; r < z; r++)
	{
		cout << setw(12) << "";
		for (int c = 0; c < y; c++)
			cout << setw(4) << x[r][c] << "      ";
		cout << setw(4) << a[r] << endl;
```

```
        }
        cout << setw(12) << "";
        for (int c = 0; c < y; c++)
                cout << setw(4) << d[c] << "     ";
        cout << endl << endl;
}
```