AP Computer Science — Lesson 0413
Dr. Paul L. Bailey — Saturday, April 11, 2020

Okay guys most of you are doing well, at least trying the assignments.

I graded five assignments for you last week; P0405 (associates), H0406, H0407, H0408, and Q0409. The quiz counts as a quiz, the other assignments count as an extra bonus 0.5 point toward your quiz score. Please keep doing the homework on a daily basis, and you will rock the AP exam! I have faith in you!

Last week we practiced some AP problems. This week I want to go back to the Graph project, and make one method or class a day for you to work on.

Today I want EVERYONE who hasn't figured out how to do

```
public List<Vertex> associates(Vertex v)
```

to try to get it to work.

Post *just* the code for the `associates` method to the appropriate assignment in Google Classroom. Let me know if you can figure out how to cut and paste the code into the assignment, of if you *have* to create a file and upload it.

After you have done this, checkin with this link:

0413 AP Computer Science Checkin

Here is some code for adjacents:

```
public List<Vertex> adjacents(Vertex v)
{
    List<Vertex> L = new ArrayList<Vertex>();

    for (Edge e : E)
    {
        if (e.involves(v))
        {
            L.add(e.other(v));
        }
    }
    return L;
}
```

It is possible to write `associates` using recursion but it is not necessary. Here is some pseudocode for associates:

```
public List<Vertex> associates(Vertex v)
    Create a new list L and put v and all of the adjacents of v in it

    Start at the beginning of L
    While there are more vertices in L
        Get the next vertex w in L
        Get the adjacents A of w
        For each vertex x in A
            If x is not already in L
                Add x to the end of L
    Return L
```

Test this with a fairly large graph with at least two components.

Please feel free to send me a message any time on Microsoft Teams.