

Please name your program as P1.py, P2, py ...

Homework2:

P1:

a number series is defined by the following rules. The first two numbers are 0 and 1. And all the following numbers are defined as the sum of previous two numbers. White a program to generate the first 1000 numbers in this number series with 0, 1 included.

P2:

Write a program that prints a table with t values in the first column and the corresponding $y(t) = v_0 t - 0.5gt^2$ values in the second column. Use n uniformly spaced t values throughout the interval $[0, 2v_0/g]$. Set $v_0 = 1$, $g = 9.81$, and $n = 11$. Name of program file: `ball_table1.py`. ◇

P3:

We want to generate x coordinates between 1 and 2 with spacing 0.01. The coordinates are given by the formula $x_i = 1 + ih$, where $h = 0.01$ and i runs over integers $0, 1, \dots, 100$. Compute the x_i values and store them in a list. Use a `for` loop, and append each new x_i value to a list, which is empty initially. Name of program file: `coor1.py`. ◇

P4:

Exercise 2.9. *Simulate operations on lists by hand.*

You are given the following program:

```
a = [1, 3, 5, 7, 11]
b = [13, 17]
c = a + b
print c
b[0] = -1
d = [e+1 for e in a]
print d
d.append(b[0] + 1)
d.append(b[-1] + 1)
print d[-2:]
```

Explain what is printed by each `print` statement.

P5:

Given $n + 1$ roots r_0, r_1, \dots, r_n of a polynomial $p(x)$ of degree $n + 1$, $p(x)$ can be computed by

$$p(x) = \prod_{i=0}^n (x - r_i) = (x - r_0)(x - r_1) \cdots (x - r_{n-1})(x - r_n). \quad (2.3)$$

Store the roots r_0, \dots, r_n in a list and make a loop that computes the product in (2.3). Test the program on a polynomial with roots $-1, 1$, and 2 . Name of program file: `polynomial_prod.py`. \diamond

How to submit:

- 1) Put all your program files into a folder named `homework2`
- 2) Zip it into a single file `homework1.zip` using the `winrar` program
- 3) Upload your submission file to <https://dropbox.cse.sc.edu/> since you enrolled in this course, you should have already got access to this above cse dropbox. This is NOT the same dropbox that we share files. Don't put your homework into that CSCE206 folder as it can be seen by others.

Note:

- The dropbox for each homework will be closed after due date. So be sure to submit it before deadline.
- You are encouraged to do the other exercises to test your learning
- please name your program files as suggested by the book.
- You need to make your programs run without any error. When I grade it, I will check the results.
- Write your code with reasonable comments