

# Lists Practice

## Activity 1: Student names

1. Create a list that contains the names of 5 students of this class. (Do not ask for input to do that, simply create the list.)
2. Print the list.
3. Ask the user to input one more name and append it to the list.
4. Print the list.
5. Ask a user to input a number.
6. Print the name that has that number as index or "Error, too big!" if the index is beyond the end of the list.
7. Add "John Smith" and "Mary Miller" at the beginning of the list (by using "+").
8. Print the list.
9. Remove the last name from the list.
10. Print the list.
11. Ask a user to type a name.
12. Check whether that name is in the list: if it is then delete it from the list. Otherwise add it at the end.
13. Create a for loop that prints for each student "hello student\_name, how are you?" where student\_name is replaced by the name of the student
14. *Extra challenge (optional): Create a for loop that asks the user for every name whether they would like to keep the name or delete it. Delete the names which the user no longer wants. Hint: you cannot go through a list using a for loop and delete elements from the same list simultaneously because in that way the for loop will not reach all elements. You can either use a second copy of the list for the loop condition or you can use a second empty list to which you append the elements that the user does not want to delete.*

## Activity 2: Random order

Write a function named `print_randomly` that takes a list parameter and prints out its elements in random order.

```
fav_foods = ["spaghetti", "ravioli", "macaroni", "rigatoni"]
print_randomly(fav_foods)
```

The preceding call should result in the following output (for example – it should be random!):

```
Item 1: ravioli
Item 2: macaroni
Item 3: spaghetti
Item 4: rigatoni
```

Make sure you are printing the item count starting at 1

You will want to look at the `shuffle` function in the `random` package:

<http://docs.python.org/library/random.html>

### Activity 3: Grade calculator

You will turn this one in by the end of Tuesday's class period.

Write a program that will calculate your average grade in a class. The program should ask the user how many grades her or she will input. Then it should prompt for that many grades and how many points they were out of. Here is an example run (user input underlined):

```
Welcome to the grade calculation program!
```

```
How many grades do you want to enter? 3
```

```
Grade 1: 20
```

```
Grade 1 out of: 20
```

```
Grade 2: 15
```

```
Grade 2 out of: 20
```

```
Grade 3: 45
```

```
Grade 3 out of: 50
```

```
Your average grade: 88.89%
```

Check out the round function: <http://docs.python.org/library/functions.html#round>

### Activity 4: Multiple students grade calculator

*This is an extra set of challenges for you who need it!! Impress me!*

First, add logic to activity 3's program such that you tell the user what letter grade they get.

Then, extend the program such that it also prompts you for the number of students to enter data for. You will need to look up nested lists or lists of lists.

Your program should end by displaying the overall average grade for the class and drawing a histogram of grades using Turtle Graphics. If you are unsure what a histogram is, look it up!