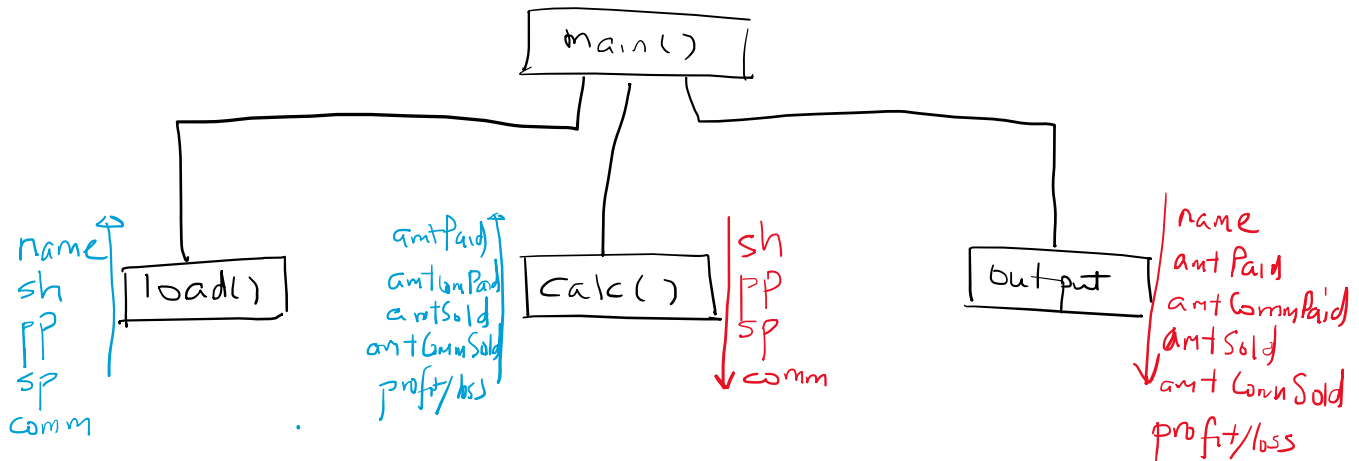


Homework 3 hints

Program Set 1.

This is the same stock program that we had worked on before in HW1 and now you need to write functions for it.

First thing you should do is draw a structure chart. Now there are a few ways you might approach this. I am just giving you one solution.



The structure chart should help you to start writing the program

1. Remember do not write all the functions and then run.
2. Write one function at a time and test it first.
3. This program requires you to use a while loop.
4. Don't forget 5 test runs or a zero score will be given.

Some of you might want to split those 3 functions into more functions and that's perfectly fine. You can actually split calc() into more functions.

Follow the example I gave in class with the sum and average program for functions.

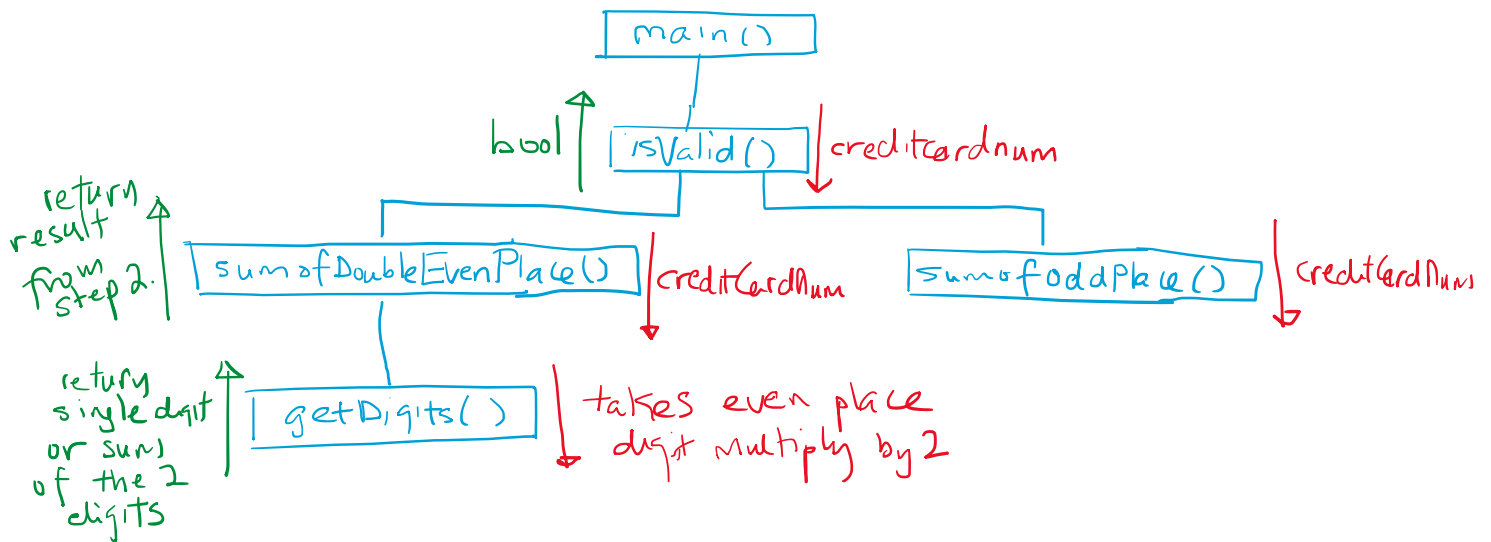
Program set 2

This is a program to check whether a credit card is a valid credit card. This algorithm was designed by Hans Luhn.

1. You must enter the credit card number as a **string** not an integer.
2. You must check that the credit card is between 13 to 16 digits
3. Must start with 4 or 5 or 37 or 6
4. The rest you can read and figure out how it is done.

Important thing is to draw a structure chart and figure out how the values are passed between functions.

YOU MUST USE ALL THE FUNCTIONS GIVEN, NO ADDING OF YOUR OWN FUNCTIONS OR NOT USING THE FUNCTIONS GIVEN.



main()

- User input credit card as a string
- Call function isValid()
- Use if statements for the value returned from function isValid() to print if credit card is valid or not valid.

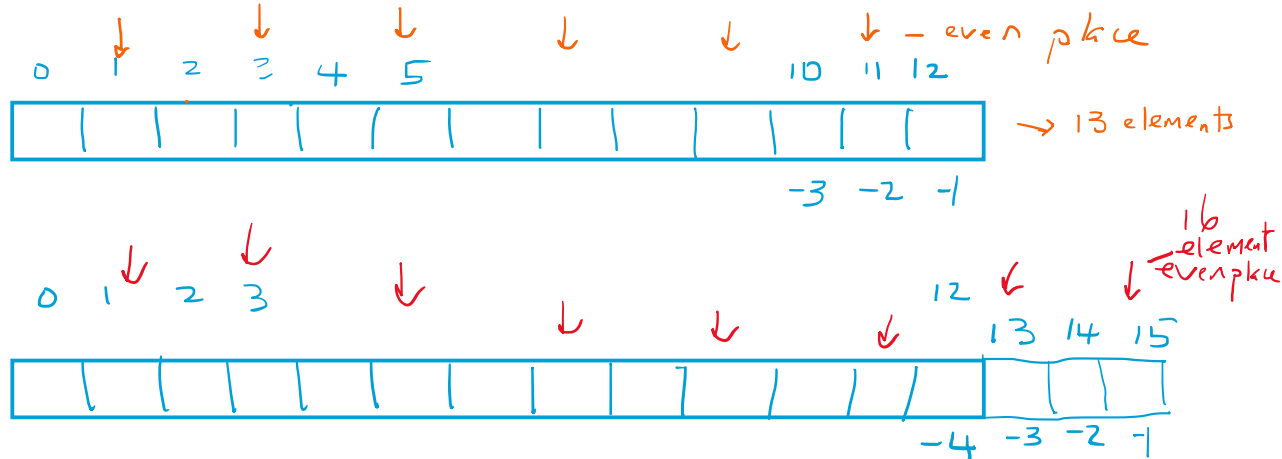
isValid()

- Check whether the credit starts with (see notes at the bottom of homework, startswith()) those numbers like 4, 5...
- Call function sumofDoubleEvenPlace() and sends the creditcardnum to it. It will return the value from step 2 of the calculation in the homework specification.
- Call sumofOddPlace() and pass creditcardnum to it and get the sum of odd digits
- Check if a and $((b + c) \text{ is divisible by } 10)$ is true
- If d is true then return a bool (True or False to main())

sumofDoubleEvenPlace()

- Takes the creditcardnum from isValid()
- Sum the double even place digits from right to left as in step 1 of the specifications in the homework. But you will send the even place digits multiplied by 2 to getDigit() to check for whether it will be one or two digits. getDigit() will return a single digit if it is single digit, if it is double digit then it will split it and add the two digits up and send the sum of the 2 digits back to sumofDoubleEvenPlace()

Hint:



so, even places from right to left + from the above diagram

```
for i in range(len(creditcardnum)-2, -1, -2):  
    total += getDigit(int(creditcardnum[i] * 2))  
    ↳ call getDigit.
```

getDigits()

1. Receive the (even place number * 2) from sumofDOubleEvenPlace()
2. Check if it is a single digit, if so return that digit
3. If it is not single digit, then split the 2 digit number and sum the 2 digits and return the sum

sumofOddPlace()

1. Receive the creditcardnum from isValid()
2. Sum the digits of the odd place
3. Return the sum to isValid

Finally, you do not have to follow the steps inside the functions that I have given you, **BUT YOU MUST STILL HAVE THE FIVE FUNCTIONS THAT I HAVE SPECIFIED. YOU CANNOT ADD OR REMOVE THE SPECIFIED FUNCTIONS OR CHANGE THE FUNCTION NAMES GIVEN.**