

ASSIGNMENT 3.1

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1. Introduction

This assignment will help you to consolidate the concepts learnt in the session.

2. Problem Statement

Problem Statement 1:

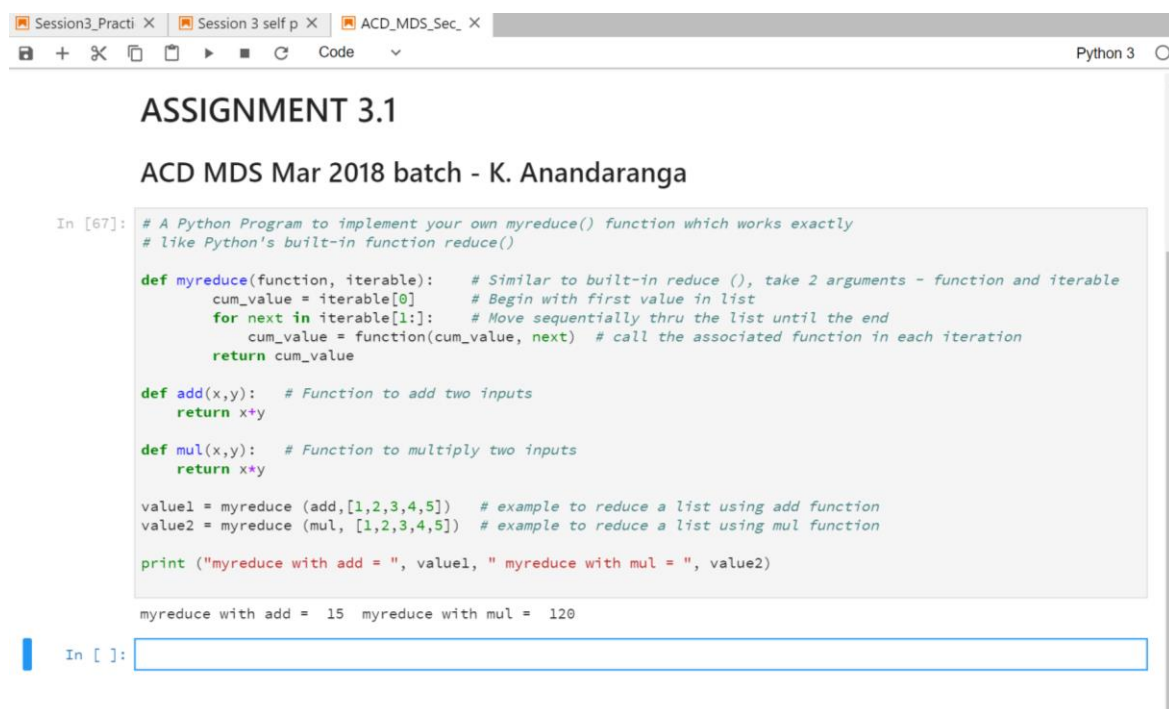
Write a Python Program to implement your own myreduce() function which works exactly like Python's built-in function reduce()

Problem Statement 2:

Write a Python program to implement your own myfilter() function which works exactly like Python's built-in function filter()

3. Output

Solution to problem #1:



The screenshot shows a Jupyter Notebook interface with three tabs: 'Session3_Practi', 'Session 3 self p', and 'ACD_MDS_Sec_'. The active tab is 'ACD_MDS_Sec_'. The notebook content includes the title 'ASSIGNMENT 3.1' and 'ACD MDS Mar 2018 batch - K. Anandaranga'. Below this, a code cell (In [67]:) contains a Python program to implement a myreduce function. The code defines myreduce, add, and mul functions, and uses myreduce to calculate the sum and product of a list. The output of the code cell is 'myreduce with add = 15 myreduce with mul = 120'. A new code cell (In []:) is visible at the bottom.

```
In [67]: # A Python Program to implement your own myreduce() function which works exactly
# like Python's built-in function reduce()

def myreduce(function, iterable):    # Similar to built-in reduce (), take 2 arguments - function and iterable
    cum_value = iterable[0]         # Begin with first value in list
    for next in iterable[1:]:       # Move sequentially thru the list until the end
        cum_value = function(cum_value, next) # call the associated function in each iteration
    return cum_value

def add(x,y):    # Function to add two inputs
    return x+y

def mul(x,y):    # Function to multiply two inputs
    return x*y

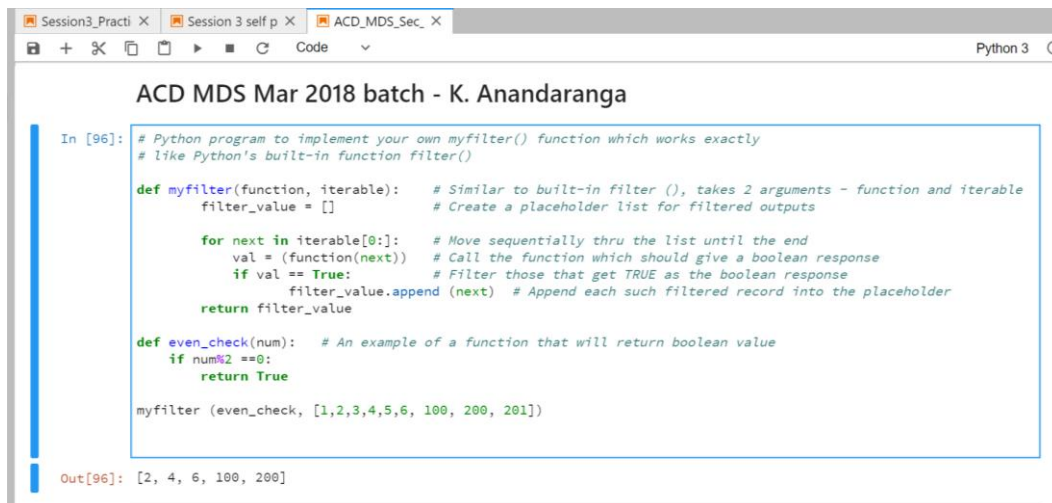
value1 = myreduce (add,[1,2,3,4,5]) # example to reduce a list using add function
value2 = myreduce (mul, [1,2,3,4,5]) # example to reduce a list using mul function

print ("myreduce with add = ", value1, " myreduce with mul = ", value2)

myreduce with add = 15 myreduce with mul = 120

In [ ]:
```

Solution to Problem #2:



The screenshot shows a Jupyter Notebook window with three tabs: 'Session3_Practi', 'Session 3 self p', and 'ACD_MDS_Sec'. The active tab is 'ACD_MDS_Sec'. The notebook title is 'ACD MDS Mar 2018 batch - K. Anandaranga'. The code is written in Python 3. The code defines a custom filter function 'myfilter' and an example function 'even_check'. The 'myfilter' function takes a function and an iterable as arguments, creates a placeholder list, and iterates through the iterable, applying the function to each element. If the function returns True, the element is appended to the placeholder list. The 'even_check' function returns True if a number is even. The code then calls 'myfilter(even_check, [1,2,3,4,5,6, 100, 200, 201])' and prints the result.

```
In [96]: # Python program to implement your own myfilter() function which works exactly
# like Python's built-in function filter()

def myfilter(function, iterable):    # Similar to built-in filter (), takes 2 arguments - function and iterable
    filter_value = []               # Create a placeholder list for filtered outputs

    for next in iterable[0:]:       # Move sequentially thru the list until the end
        val = (function(next))      # Call the function which should give a boolean response
        if val == True:             # Filter those that get TRUE as the boolean response
            filter_value.append(next) # Append each such filtered record into the placeholder
    return filter_value

def even_check(num):                # An example of a function that will return boolean value
    if num%2 == 0:
        return True

myfilter(even_check, [1,2,3,4,5,6, 100, 200, 201])

Out[96]: [2, 4, 6, 100, 200]
```