

## Week 6: <title>

### Week 6- Programs on dictionary and Files

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Section: G

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| Program 1 | Write a program to print a dictionary where the keys are numbers between 1 and 15 and the values are cube of keys.   |
|           | <b>Input:</b><br>Enter range till you need to generate cubes: 10<br><b>output:</b><br>The resultant dictionary with cube as value numbers between 1 and 10 is<br>{1: 1, 2: 8, 3: 27, 4: 64, 5: 125, 6: 216, 7: 343, 8: 512, 9: 729, 10: 1000}  |
|           | Algorithm:<br>Step1: Start<br>Step2: Read value from user to find cubes till the number, x<br>Step3: Create a new dictionary<br>Step4: for l in range from 1 to x+1<br>Step5: d[i]=(i,i^3)<br>Step6: repeat step 5 till all elements have been added to d<br>Step7: print the dictionary<br>Step8: End |
|           | Program:<br>x = int(input("Enter a number till when you want to find its cube to "))<br>d = dict() #creating anew dictionary<br><br>for i in range(1,x+1):<br>d[i] = pow(i,3) #using pow function to find cube of the number<br><br>print(d)   |
|           | Output:<br>D:\PES\Semester 1\Computer Science- Python Programming\PythonLab\Week6>program1.py<br>Enter a number till when you want to find its cube to 12<br>{1: 1, 2: 8, 3: 27, 4: 64, 5: 125, 6: 216, 7: 343, 8: 512, 9: 729, 10: 1000, 11: 1331, 12: 1728}  |
| Program 2 | Construct dictionary phone_book with :<br>Key:number of entries, Values: (name,phone number,email,address) and perform the following operations:<br>i) Add a new number to phone_book<br>ii) delete entry from phone book.   |
|           | Algorithm:<br>Step1: Start   |

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|  | <p>Step2: set value in values</p> <p>Step3: Enumerate through values and add them into a dictionary, d</p> <p>Step4: Display the dictionary</p> <p>Step5: Change the length of the dictionary by adding a new element and reading its value into the newly added key</p> <p>Step6: Print the new dictionary</p> <p>Step7: Enter the user input to delete the specified key from the dictionary</p> <p>Step8: Check if entered key is present in the dictionary</p> <p>Step9: if present, delete the key. If not print "key not found"</p> <p>Step10: Print the dictionary</p> <p>Step11: End</p>   |
|  | <p>Program:</p> <pre>values = [("Rashma",8105731555,"rashma@gmail.com","bangalore"),           ("Saritha",9582161900,"saritha@gmail.com","Mangalore"),           ("Bharathi",9276895311,"bharathi@yahoo.com","Coimbatore"),           ("deepthi",8976885553,"deepthi@gmail.com","bangalore"),           ("kakoli",8816121598,"kakili@gmail.com","dispur")]  d = dict(enumerate(values,1)) #read values to dictionary one by one print("The phone book is \n",d,"\n")  # i) Add new number to phone book #adding the new value at the end of the dictionary d[len(d)+1] = [('sreenath', 9872345670, 'sreenath@pes.edu', 'kolar')] print("The phone book after adding a new number to the phone book is \n",d,"\n")  # ii) Delete an entry based on the key entered by user  key = int(input("Enter the phone book entry to be deleted ")) if key in d: #condition to check if input key is present in the dictionary     del d[key] #deleting key from dictionary else:     print("Key not found")  print("After deleting key from the phone book, the phone book is \n",d)</pre> |
|  | Output:  |

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|           | <pre> D:\PES\Semester 1\Computer Science- Python Programming\PythonLab\Week6&gt;program2.py The phone book is {1: ('Rashma', 8105731555, 'rashma@gmail.com', 'bangalore'), 2: ('Saritha', 9582161900, 'saritha@gmail.com', 'Mangalore'), 3: ('Bharathi', 9276895311, 'bharathi@yahoo.com', 'Coimbatore'), 4: ('deepthi', 8976885553, 'deepthi@gmail.com', 'bangalore'), 5: ('kakoli', 8816121598, 'kakili@gmail.com', 'dispur')}  The phone book after adding a new number to the phone book is {1: ('Rashma', 8105731555, 'rashma@gmail.com', 'bangalore'), 2: ('Saritha', 9582161900, 'saritha@gmail.com', 'Mangalore'), 3: ('Bharathi', 9276895311, 'bharathi@yahoo.com', 'Coimbatore'), 4: ('deepthi', 8976885553, 'deepthi@gmail.com', 'bangalore'), 5: ('kakoli', 8816121598, 'kakili@gmail.com', 'dispur'), 6: [('sreenath', 9872345670, 'sreenath@pes.edu', 'kolar')]}  Enter the phone book entry to be deleted 4 After deleting key from the phone book, the phone book is {1: ('Rashma', 8105731555, 'rashma@gmail.com', 'bangalore'), 2: ('Saritha', 9582161900, 'saritha@gmail.com', 'Mangalore'), 3: ('Bharathi', 9276895311, 'bharathi@yahoo.com', 'Coimbatore'), 5: ('kakoli', 8816121598, 'kakili@gmail.com', 'dispur'), 6: [('sreenath', 9872345670, 'sreenath@pes.edu', 'kolar')]} </pre> |
| Program 3 | <p>Given list of students, marks for phy,chem,maths and biology form a dictionary where key is SRN and values is dictionary containing PCMB marks of respective student.</p>   |
|           | <p>Algorithm:</p> <p>Step1: Start</p> <p>Step2: Set srns, p_marks, c_marks, m_marks, b_marks</p> <p>Step3: Create two new dictionaries, student_marks and marks_det</p> <p>Step4: iterate through srns</p> <p>Step5: assign subject to marks scored in the particular subject</p> <p>Step6: repeat step5 for all srns and keep adding values to student_marks</p> <p>Step7: Print student_marks</p> <p>Step8: End</p>  |
|           | <p>Program:</p> <pre> srns = ["PECS001","PECS015","PECS065","PECS035","PECS038"] #set srns #set marks scored by each student in each subject, physics, chemistry, maths and biology p_marks = [98,99,85,92,79] c_marks = [91,90,84,98,99] m_marks = [78,39,60,50,84] b_marks = [95,59,78,80,89]  #create a new dictionary for student marks and marks student_marks={} marks_det={}  #for loop used to add marks into marks_det for each student for each subject for i in range(0,len(srns)):     marks_det['Physics'] = p_marks[i]     marks_det['Chemistry'] = c_marks[i]     marks_det['Maths'] = m_marks[i]     marks_det['Biology'] = b_marks[i]     student_marks[srns[i]] = marks_det  print(student_marks) </pre>   |


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|           | <p>Output:</p> <pre>D:\PES\Semester 1\Computer Science- Python Programming\PythonLab\Week6&gt;program3.py {'PECS001': {'Physics': 79, 'Chemistry': 99, 'Maths': 84, 'Biology': 89}, 'PECS015': {'Physics': 79, 'Chemistry': 99, 'Maths': 84, 'Biology': 89}, 'PECS065': {'Physics': 79, 'Chemistry': 99, 'Maths': 84, 'Biology': 89}, 'PECS035': {'Physics': 79, 'Chemistry': 99, 'Maths': 84, 'Biology': 89}, 'PECS038': {'Physics': 79, 'Chemistry': 99, 'Maths': 84, 'Biology': 89}}</pre>  |
| Program 4 | <p>a) Read movie data from mov1.csv file. CSV file mov1.csv has three columns c1 has year, c2 has rating, c3 has movie name.</p> <p>b) write the year of release and movie name from mov1.csv to a text file</p>   |
|           | <p>Algorithm:</p> <p>Step1: Start</p> <p>Step2: open file 'mov1.csv' in read mode</p> <p>Step3: read contents of the file and store in x</p> <p>Step4: print x</p> <p>Step5: close the file</p> <p>Step6: open two files, one in read mode, 'mov1.csv' and one in write mode, 'newmov1.txt'</p> <p>Step7: read each line of file into variable line</p> <p>Step8: extract year of release and movie name from line</p> <p>Step9: write year of release and movie name to newmov1.txt</p> <p>Step10: repeat step7, step8 and step9 till all lines are read from mov1.csv</p> <p>Step11: close all files</p> <p>Step12: End</p>  |
|           | <p>Program:</p> <pre>""" Read movie data from mov1.csv file. CSV file mov1.csv has three columns c1 has year, c2 has rating, c3 has movie name. """  file1 = open('mov1.csv', 'r') #opening file mov1.csv in read mode x = file1.read() #reading the entire contents of the file print(x) file1.close()  """ write the year of release and movie name from mov1.csv to a text file """  file2 = open('mov1.csv', 'r') file3 = open('newmov1.txt', 'w') #creating a new file to store the values year of release and movie name  #read one line at a time, extract the year of release and movie name and #write these values to the file newmov1.txt line = file2.readline() while line:     line = line.strip() #remove extra characters and \n</pre> |

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|  | <pre> y = line.split(',') print(y[0],y[-1], file = file3) #write year of release and movie name to file newmov1.txt line = file2.readline()  # close the files file2.close() file3.close() </pre>  |
|  | <pre> Output: D:\PES\Semester 1\Computer Science- Python Programming\PythonLab\Week6&gt;program4.py 1968,86,Greetings 1970,17,Bloody Mama 1970,73,Hi 1971,40,Born to Win 1973,98,Mean Streets 1973,88,Bang the Drum Slowly 1974,97,The Godfather 1976,41,The Last Tycoon 1976,99,Taxi Driver 1977,47,1900 1977,67,New York 1978,93,The Deer Hunter 1980,97,Raging Bull 1981,75,True Confessions 1983,90,The King of Comedy 1984,89,Once Upon a Time in America 1984,60,Falling in Love 1985,98,Brazil 1986,65,The Mission 1987,100,Dear America: Letters Home From Vietnam 1987,80,The Untouchables 1987,78,Angel Heart 1988,96,Midnight Run 1989,64,Jackknife 1989,47,We're No Angels 1990,88,Awakenings 1990,29,Stanley &amp; Iris 1990,96,Goodfellas 1991,76,Cape Fear 1991,69,Mistress 1991,65,Guilty by Suspicion 1991,71,Backdraft 1992,87,Thunderheart </pre> |

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|           | <pre> 1991,65,Guilty by Suspicion 1991,71,Backdraft 1992,87,Thunderheart 1992,67,Night and the City 1993,75,This Boy's Life 1993,78,Mad Dog and Glory 1993,96,A Bronx Tale 1994,39,Mary Shelley's Frankenstein 1995,80,Casino 1995,86,Heat 1996,74,Sleepers 1996,78,The Fan 1996,80,Marvin's Room 1997,85,Wag the Dog 1997,87,Jackie Brown 1997,72,Cop Land 1998,68,Ronin 1998,38,Great Expectations 1999,69,Analyze This 1999,43,Flawless 2000,44,The Adventures of Rocky &amp; Bullwinkle 2000,84,Meet the Parents 2000,41,Men of Honor 2001,73,The Score 2001,33,15 Minutes 2002,48,City by the Sea 2002,27,Analyze That 2003,4,Godsend 2004,35,Shark Tale 2004,38,Meet the Fockers 2005,4,The Bridge of San Luis Rey 2005,46,Rent 2005,13,Hide and Seek 2006,54,The Good Shepherd 2007,21,Arthur and the Invisibles 2007,76,Captain Shakespeare </pre> <p>Output of newmov1.txt:</p>  <p>newmov1.txt</p> |  |
| Program 5 | From file mov1.csv make a dictionary with Key as year and values as name of movies released in that year.   |  |
|           | Algorithm:<br>Step1: Start<br>Step2: open file, 'mov1.csv' in read mode<br>Step3: create a new dictionary<br>Step4: read each line of file into line  |  |

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|           | <p>Step5: condition to check if movies are repeated</p> <p>Step6: add year of release and movie name into the dictionary</p> <p>Step7: read all lines of the file</p> <p>Step8: Repeat step5 Step6, step7 till all lines are read</p> <p>Step9: Print d</p> <p>Step10: close all files</p>   |
|           | <p>Program:</p> <pre>file1 = open('mov1.csv','r') #open file in read mode d = dict()  #read one line at a time, extract the year of release and movie name and #write these values to the dictionary line = file1.readline() while line:     line = line.strip()     list1 = line.split(',')      if list1[0] not in d: #condition to check repetition         d[list1[0]]=[]     d[list1[0]].insert(0,list1[-1]) #adding values to the dictionary      line = file1.readline()  print(d) file1.close()</pre>  |
|           | <p>Output:</p> <pre>D:\PES\Semester 1\Computer Science- Python Programming\PythonLab\Week6&gt;program5.py {'1968': ['Greetings'], '1970': ['Hi', 'Bloody Mama'], '1971': ['Born to Win'], '1973': ['Bang the Drum Slowly', 'Mean Streets'], '1974': ['The Godfather'], '1976': ['Taxi Driver', 'The Last Tycoon'], '1977': ['New York'], '1980': ['The Deer Hunter'], '1980': ['Raging Bull'], '1981': ['True Confessions'], '1983': ['The King of Comedy'], '1984': ['Falling in Love', 'Once Upon a Time in America'], '1985': ['Brazil'], '1986': ['The Mission'], '1987': ['Angel Heart', 'The Untouchables', 'Dear America: Letters Home From Vietnam'], '1988': ['Midnight Run'], '1989': ['We're No Angels', 'Jacknife'], '1990': ['Goodfellas', 'Stanley &amp; Iris', 'Awakenings'], '1991': ['Backdraft', 'Guilty by Suspicion', 'Mistress', 'Cape Fear'], '1992': ['Night and the City', 'Thunderheart'], '1993': ['A Bronx Tale', 'Mad Dog and Glory', 'This Boy's Life'], '1994': ['Mary Shelley's Frankenstein'], '1995': ['Heat', 'Casino'], '1996': ['Marvin's Room', 'The Fan', 'Sleepers'], '1997': ['Cop Land', 'Jackie Brown', 'Wag the Dog'], '1998': ['Great Expectations', 'Ronin'], '1999': ['Flawless', 'Analyze This'], '2000': ['Men of Honor', 'Meet the Parents', 'The Adventures of Rocky &amp; Bullwinkle'], '2001': ['15 Minutes', 'The Score'], '2002': ['Analyze That', 'City by the Sea'], '2003': ['Godsend'], '2004': ['Meet the Fockers', 'Shark Tale'], '2005': ['Hide and Seek', 'Rent', 'The Bridge of San Luis Rey'], '2006': ['The Good Shepherd'], '2007': ['Captain Shakespeare', 'Arthur and the Invisibles'], '2008': ['What Just Happened?', 'Righteous Kill'], '2009': ['Everybody's Fine'], '2010': ['Stone', 'Little Fockers', 'Machete'], '2011': ['Limitless', 'New Year's Eve', 'Killer Elite'], '2012': ['Red Lights', 'Being Flynn', 'Silver Linings Playbook'], '2013': ['Killing Season', 'Grudge Match', 'The Big Wedding'], '2014': ['The Bag Man'], '2015': ['The Intern', 'Heist', 'Joy'], '2016': ['Dirty Grandpa']}</pre> |
| Program 6 | <p>In the given dictionary find total marks and percentage</p> <pre>{'PECS001': {'phy': 79, 'chem': 99, 'mat': 84, 'Bio': 84}, 'PECS015': {'phy': 79, 'chem': 99, 'mat': 84, 'Bio': 84}, 'PECS065': {'phy': 79, 'chem': 99, 'mat': 84, 'Bio': 84}, 'PECS035': {'phy': 79, 'chem': 99, 'mat': 84, 'Bio': 84}, 'PECS038': {'phy': 79, 'chem': 99, 'mat': 84, 'Bio': 84}}</pre>   |

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|  | <p>Algorithm:</p> <p>Step1: Start</p> <p>Step2: Initialize dictionary, Stu_marks with srn as key and subject:marks as values</p> <p>Step3: Print Stu_marks</p> <p>Step4: Create a new dictionary Score_card</p> <p>Step5: for each srn in Stu_marks, read the marks for all subjects</p> <p>Step6: compute the total and percentage from marks</p> <p>Step7: Add the srn as key and percentage, marks as values to Score_card</p> <p>Step8: Repeat steps 5 to 7 till all items in Stu_marks are read</p> <p>Step9: print Score_card</p> <p>Step10: End</p>   |
|  | <p>Program:</p> <pre>#set Stu_marks Stu_marks={'PECS001': {'phy': 79, 'chem': 90, 'mat': 84, 'Bio': 87},             'PECS015': {'phy': 59, 'chem': 76, 'mat': 74, 'Bio': 66},             'PECS065': {'phy': 89, 'chem': 58, 'mat': 94, 'Bio': 81},             'PECS035': {'phy': 71, 'chem': 91, 'mat': 81, 'Bio': 86},             'PECS038': {'phy': 75, 'chem': 98, 'mat': 75, 'Bio': 84}}</pre> <p>print("detailed marks \n",Stu_marks,"\n")</p> <p>Score_card = {} #create a dictionary</p> <p>#compute total and percentage for each student and add to Score_card</p> <p>for srn,marks in Stu_marks.items():</p> <pre>    d = dict()     d['total'] = sum(marks.values())     d['percent'] = d['total']/4     Score_card[srn] = d</pre> <p>print(Score_card)</p> |
|  | <p>Output:</p> <pre>D:\PES\Semester 1\Computer Science- Python Programming\PythonLab\Week6&gt;program6.py detailed marks {'PECS001': {'phy': 79, 'chem': 90, 'mat': 84, 'Bio': 87}, 'PECS015': {'phy': 59, 'chem': 76, 'mat': 74, 'Bio': 66}, 'PECS065': {'phy': 89, 'chem': 58, 'mat': 94, 'Bio': 81}, 'PECS035': {'phy': 71, 'chem': 91, 'mat': 81, 'Bio': 86}, 'PECS038': {'phy': 75, 'chem': 98, 'mat': 75, 'Bio': 84}}  {'PECS001': {'total': 340, 'percent': 85.0}, 'PECS015': {'total': 275, 'percent': 68.75}, 'PECS065': {'total': 322, 'percent': 80.5}, 'PECS035': {'total': 329, 'percent': 82.25}, 'PECS038': {'total': 332, 'percent': 83.0}}</pre>  |
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