* DATA STRUCTURE and many many Rython data Structure are ways of organizing and sorting data so that they can be accessed and modified efficiently. - Python provides both build in data structure and allow w to Proplement uses defined data structures of - place for (men) woon - my cuerter. []: 1891 tuple:() input (Cube, c) Su: {} el & c turtion dect: { key: Values } nun = 1281 (map (201, input ("enter the value")). 3pt 10)) Goduthe Value: 1, 2, 3, 4, 5 . It - + or p [1,2,3,4,5] (1-10) by to any a our wide to the

- [], () Poots well represent l'est. StJ: It is a Heterogenous data Conceter and it is order, mudable and allow duplicates. -> tretuggenor data Couvetor: Couvets all Gind of clasa. - ordered data: told the position. (3) bougges as - mutable: any 12nd of changes can be done. (5) hoggs no → eg: 11 = ["varsha", "30-10-2002", 6-9, Pru, 2+5]] H(P11) =0): Charsha', '30-10-2002', 5-9, True, (2+5) Jord for i in 11: (1) pudde of Comput (en, on Po) JARN (?) [00,81,01,41,61,01,8,0,4,6] Varsha 30-10-2002 [P1, F1, 81, 11, 18, 18, 18, 19] [1, 2, 3, 7, 11, 13, 17, 19] 2+5j. 11-append (35) [Warsha', (80-10-2002', 59, True, CO+55) +, 25] Opposed (): add. Pop(): Delete. Split (): Spelly the Ust. north were speculo of brooks what here Insut (): to Proset Value to Specific rposition bersoner): to delete balue. chael : Detele entre 181. 1. raturals and 10 10 10 10 10 S'ort(): awarging enther in ascenting or desending order

ceg: Coreale even, odd, prême number list from 1-to so non. I, () Poots when when () [en=[] J. K is a -thetecogenous datas coveredor and it is order On - [] at also deplicates. Po=[] for i in range (1, 21,1) is down robours ofth was poster EJ (9.1.2 = = 0): doud data: Hold - the Troffloor en appind (i) extens and 1509 of charges can be close on append (3) for S Politiange (D) P.D. "0000-01-08" "prompte") A(?.1. j = = 0): else: break; (2+0), with pro 1000 01-001, botton) 1109 700 Pro. apport (?) (3) 68ct Porol (en, on, Pr) Marsha [3, 4, 6, 8, 10, 12, 14, 16, 18, 20] 0000-01-08 [1,3,5,7,9,11,13,15,17,19] [1,2,3,7,11,13,17,19] True 045 (apport (as) * Sticing [Start Position: Stop Position: Stop size] and default Start position:0 Stop position? is end ... if we clos! I mention the value it will go upto last. PC) · Delete. Step size 1 Start Value Should be always besen than the Stop Value. Eg: Print elements from al to Their of what have at all 11- ['a', 2, 'e', 9.6, 'larcha', True, 17 19 124] 11, E0:6] about so palmer a water pagasuo : () Mint odd Position, dements. 11[1:9:2] (2. 9.5, mue, 34)

- Prent position of elements 18+ position is druby 3. 11[3::3] compid. [9.6, 'Aceh'] - white a program to find the man item from the list without using man function. 12064,6,1,9,0] man non = la [0] [4,6,1,9,2] 12 = [4,6,1,9,2] for ? 20 15: if (Es man nom): man(12) with man function. Tokat (man_num) To awange in ascending order descending order 1940 mn= 12. Sort (revuse= Thru) 12=[4,6,1,9,2] mn= 12. Sor-1 (revuse= false) (Drint (le) (\$2) hard 0 0 0 0 (4 12 1) & 3 11 6 [1,2,4,6,9] estargedo, allo, ottoframo, buelos ? Il e Revuse : Palse is ascending algor the value defaultly. • 18 = [1,2,8,8,3,4,4,6,6,6,7,8,9,9] pd 18 delpu • 18 = [1,2,8,8,3,4,4,6,6,6,7,8,9,9] pd 18 delpu Remove all dupes. Es: 41 - (00, leanthal, True 39.0, 1 jay) new_13 = [] (13) - (13-) (E) for? in 13: H ? not in new_13: new-13. append (?) [ret our , with , wheney , so] Print (new-13) mult look pot adjut to expert a trad as a (1,2,3,4,5,6,7,8,9) (F8, d) (66, 12) eldut · 11- [1,2,3,4,6] (16) (16) (16) (16) (16) 12= (4,6,6,7,8) (Lelger) toll eleget inter [] for inti:

Picota: Fidotic dip I to the first FAT man at half at morgant a els Onic] for? 2011: as trail was light moder the solar and [c,P,1,2,7] [c,P,1,2,7] Constapped (3) [a] cl - mon-rom fori Po la: . nother from after (61) il i not in uni: Print (Uni) wange in ascending order Output: on prisonesses [9,6,1,9,2] [1,2,3,4,5,6,7,8] old. Sort (revuse folse) * Pople (al) former (cd) Hom - It is expresented by tuple() or () -> It is ordered, immetable, allow, desplicates. [1,2,4,6,1] - Au data structures au teterogénous. - ve can't add or delete or update integle but we can captale it by Converting tople into list and thun after updation Jes: 11 = (28, Luardha!, True, 79.0, 1 jay!) " 19 16 16 0000 Temp = 13-1(E1) 5/6, 9 20 Temp if ? not in new_18; [08, 'varsha', True, 79.0' Jay'] (Sporger & were => erg: Sort a tuple of tuples by and Ptern. (81-cum) for tuple1=(('a', 23), ('b', 37), (i', 11), ('d', 20)) enpieled; (('c',11), ('a', 23), ('d', 29), ('b', 37)), A, 8, G, 13 tuple 2 = 184 (tuple 1) [8, F, D, B, P) . D toples

Pal, 23), (b', 37), ('e', 11), ('a'), 29)] Sistemostory tople1 = (('a' , 123), ('b', 34), ('e'e', 11), ('a', 24)) Trand (tople1) .) They are multiple. runp= Sorted (Ust (tople 1), luy = lamboli x : x[1]) tuple 1 = tuple (-limp) uplathog value. tople1. to = ['spe'] + OF Output: (('e', 11), ('a', 23), ('d', 29), ('b', 34)) hand. * SET {} *The Honorma → A set is an unordered, mulable Collection of unique elements. Heleogenous in nature. -) add () used to add values, add clossoft porte in light. pop(): del delete in set it will randomly delete a value. - lemove (Val) a Epreific value gruen en function volube deletel. Eg: 81 = 28, 'varsha', True, 29.0, 'Jay'} · lesol · 3' ist' - end broad [28, 'varsha', True, 29.0, Jay'} trot de Lier . ya - 31. add (72) o The Jato { 28, 12 the tarista', mue, 291.0 ! Jage perhop et lo asteral -> 81. Pop (spead and as in Same body att of the contraction of the state of the s 16 eardomly deleter a value from any position. -> 81. lemore (28) 12 south (" house how and you") eg:81={1,2,3,4,5} 82 - [4, 5, 6, 7,8] () was of Phot (81. Shluscotion (82)) Mind (81. Union (92)) On semant (" Sungle - 191") Print (cy. aleftence (32)) datas sport" any data dat Print (Sz. deffreence (S1)) Drind (g. Symmetric althuraco (82))

* DICTIONARIUS (diet (?) (11, '5') (FS, '8'), (EC,) Keys to realises. - They are mutable. &Di = {name : l'Harsha's , l'age 12 23 : implacé : colner } - updating value. (9001-) Ngot - Leby . Legal Di ['age'] = 24 my ((6, 11) ((6, 12)) ((9) ((9)) ((11 , 12)) you