List Comprehension: - dist Comprehension is a Concise way to was new lists by applying an expression to each them in an existing iterable (like a lest, tuple or range). It can also readable and often mon efficient. This approach make code men I expression ger item in iterable of Godetion) expression Jer item in iterable of Grotetion)
expression: This will hold what has to done with each item in . ifm: - this is the variable that holds each element in the Original lists. Iterable: A sequence [hire a list, temple 100 rays) to Hente optional):- A filter that determines whater the Key Jeatures: (i) Convise Syntax: - dist Comprehension provide a shorter and non readable way to create 11st compared to traditional ii) optional gesteing:- You can include any Godetion to peter (11) 1 Nested Comprehension: List Comprehension can be nested to handle most complex scenarios; such as creating matrices or flattening lists. (v) Performanci. They are generally Jaster man traditional loops because they are optimized for performance. Example: simple transformation Double each no in a lo! no= [1, 2, 3,4] Octors. [2, 4, 6, 1) doubled = Cx + 2 Jos x in no] print (double c) 1) I filtering with Conclitions output . [0, 2,4,6,2] expect even your rays. Print (eurs)

Dictionary Comprendension in python provides a Concist way to create dictionary is It allows you to define a dictionary is structure and populate it with key value pair in a singly line, making the Code more readable one efficient.

Basic syntax Dictionary comprehension Basic Syntax Velus expression: An expression producing Keys for the new velus expression: An expression producing values corresponding to the Keys. to the Keys. iterable: A sequence l'IRO a 1/8+, tuple, or sury) so 1terett · Condition (optional): A follow that determines whether the 1th in should be included (1) Enables the see creation of dictionary in a singly readable in.
(1) In cooperate conditions to Ditter items during dictionary 410 Tronsformation. Modify keys and los values during the creation Efficiency: - Generally Jastes and more momony efficient than bades and loops. (i) creating a dictionary of squares square = Ex! xxx2 gor xin raye (1,6)3 # output: - 21:1, 2:4, 3:9, 4:16, 5:253 (11) Piltery Thems: even gaures = Ex: xxx 2 for xin says (1,6) yx802==03 # output: 82: 4, 4:163 well to apper

Set Comprehension Set Comprehension is a method gor creating sets in python using the elements from other rterable like 91sts, set or type.

It is similiar 114 the 11st Comprehensia set ensues that

all elements in the resulting set are curique, as sex

donnot allows duplicates. Expression just 14m in iterable by Condition?

expression: The operation is value to include in the new set. · Item :- The cavalle representing each element in the Herebe Therable: - A sequence (like a list, type, or says) to I terase Condetion (optional): P gitter gitter that determines unether the Set compositions provides a shorter and more readable way to creat sets compared to traditional loops. · Automatic Uniqueness: - Sets automatically climinate duplicate elements, ensuing all the items are renique. you can reclude any condition to Jetter elevent from my senable. modify element during the creation process. Examples Creating a not of 84 uai. squares = Exx = 2 for i in sage (5)3 Cooper : 61,03 print (8 quares) to output 1- 20,1,4, 9,163 131 Part 164 364 3 · Filtery 14ms: no 2[1,2,3,4,5,6] aun z Cx for xin raye of (x622203 print (evous) outped = 22, 4, 63. Removing deep 15 ates text = "hello" Linque-char 2 Echas for char interts print (4wgus-Ches? toutput (000), . E/h', 'e', 'l', '6'3