1.Explain the key features of python that make it a popular choice for programming.

Ans : Python is high level interpreted programming language that is widely used for various purposes. followinga are some key features that python make it a popular choice for programming.

1.Readiability: Python language is very comfordable to read and write the program fot beginners aslo.

2.Dynamic Typing : In python no need to declare variable type so it saves our time.

3.Crossplatform : We can run python on various operating systems like windows,macOS,and Linux etc.

4.High level programming language : The python is high level programming language that means the programmer can focus on logics instead of focusing on low level details.

5.Versatility : Python is very versatile language which can used in various tasks like web developing, data analysis,machine learning etc.

6.Large community : pythan has massive and active community which means there are various resourses for learning and troubleshooting.

2.Describe the role of predefined keywords in python and provede examples of how they are used in a program.

Ans.: keywords-- keywords are special reserved words that have the specific meanings and purposes .And the keywords can not be used as variable or functions or identifiers etc. True, false, global these are some keywords.

For Example--1 use of operator keywords in program

```
a = True
b = False
print (a and b)
print (a or b)
```

```
print (not a)
```

```
False
True
False
```

3.Compare and contrast mutable and immutable objects in python with examples.

Ans. python contains both objects and i.e mutable and immutable. following are some comparasions between those objects.

Mutable objects :

-Anything that can be modified or changed is called as mutable.
-Lists, Dictonaries,sets etc. are some mutable datatypes in python.
-It can be modified in place that means it doesnot creat a new file on modifing.

Immutable objects :

-Anything that can not be modified or changed is called as immutable.
-python has following immutable datatypes : Numbers(int,float,booleans),tuples,strings ,etc.
-It creats new file when modified or changed.

4.Discuss the different types of operators in python and provide examples of how they are used.

Ans. Operators -Operators are the symbols or tokens which are used to perform specific task or operation.
-There are different types of operators in python which are as follows---

1.Arithmetic operators :

1.Addition(+).
2.Subtraction(-).
3.Multiplication(*).
4.Division(/).
5.Modulus(%).
*6.Exponential(**).

2.Comparison operators :

1.Equal(==).
2.Not equal(!=).
3.Greater than(>).
4.Less than(<).
5.Greater than or equal(>=).
6.Less than or equal to(<=).

3.Logical operators :

1.AND (and).
2.OR (or).
3.NOT (not).

4.Assignment operators :

1.Assign (==).
2.Add and asign (+=).
3.Subtract and asign (-=).
4.Multiply and asign (*=).
5.Divide and asign (/=).

5.Membership operators :

1.IN (in).
2.NOT IN (not in).

6.Identity operators :

1.IS (is).
2.IS NOT (is not)

5.Explain the concept of type casting in python with examples.

Ans. Type casting is nothing but process of converting the values of one datatype to another datatype ,This is also know as conversion.
There are two types of data casting--

1.Implicit type casting :

Python automatically converts a value from one datatype to another without explicit casting.
For example --

```
x = 5
y = 2.5
result = x+y
print (result)
```

7.5

2.Explicit type casting :

Here, In this type casting we use in build functons to convert a value from one datatype to another.
For Example--

```
x = "5"
y = int(x)
print(y)
```

5

6.How do conditional satements work in python? Illustrate with example.

Ans. Conditional statements in python are used to execute different blocks of code based on specific condition.These statements are also known as decision making statements.

Syntax :

1.if statement : Used to execute a block of code if a condition is true.

if condition: ---#code executes

2.if-else statements : Used to execute a block of code if a condition is true, and another block if its false.

if condition: ---#code executes if true
else:-----#code to execute if false

3.if-elif-else statement : Used to execute different blocks of code based on multiple conditions.

if condition1:----#code to execute if condition1 is true.
elif condition2:----#code to execute if condition 2 is true.
else:-----#code to execute if both conditions are false.

7.Describe the different types of loops in python and their use cases with examples.

Ans. Loops--loops are nothing but the programming costruct which allows to execute the blocks of code repeatedly until the condition is met.
There are two types of Loops--

1.For Loop

For loop is used to iterate over a sequence.such as a list,tuple,or string etc.

Syntax

for cariable in sequence:-----#code to execute.

Example-

```
fruits = ["Apple","banana","cherry"]
for fruit in fruits:
print(fruit)
```

Apple
banana
cherry

2.While Loop

While loop is used to execute a block of code as long as a certain condition is true.

Syntax-

while condition:----#code to execute

Example-

```
i = 0
while i < 5:
    print(i)
    i += 1
```

0

1

2

3

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