1. To implement predicate logic concepts using Python
   1. Some humans are intelligent

class Human:

def \_\_init\_\_(self, name):

self.name = name

class Intelligent:

def \_\_init\_\_(self, entity):

self.entity = entity

def is\_some\_humans\_intelligent(humans):

for human in humans:

if isinstance(human, Intelligent):

return True

return False

# Example usage

alice = Human("Alice")

bob = Human("Bob")

charlie = Intelligent(Human("Charlie"))

humans = [alice, bob, charlie]

if is\_some\_humans\_intelligent(humans):

print("Some humans are intelligent.")

else:

print("No humans are intelligent.")

**Output**

Some humans are intelligent.

**To implement predicate logic concepts using Python**

**(ii) Sachin likes cricket**

class Person:

def \_\_init\_\_(self, name):

self.name = name

class LikesCricket:

def \_\_init\_\_(self, person):

self.person = person

def does\_sachin\_like\_cricket(people):

for person in people:

if isinstance(person, LikesCricket):

return True

return False

# Example usage

sachin = Person("Sachin")

virat = Person("Virat")

dhoni = LikesCricket(Person("Dhoni"))

people = [sachin, virat, dhoni]

if does\_sachin\_like\_cricket(people):

print("Sachin likes cricket.")

else:

print("Sachin doesn't like cricket.")

**Output:**

Sachin likes cricket.

**III. Ravi and Ajay are brothers**

class Person:

def \_\_init\_\_(self, name):

self.name = name

class Brothers:

def \_\_init\_\_(self, person1, person2):

self.person1 = person1

self.person2 = person2

def are\_ravi\_and\_ajay\_brothers(people):

for relation in people:

if isinstance(relation, Brothers):

return True

return False

# Example usage

ravi = Person("Ravi")

ajay = Person("Ajay")

brothers\_relation = Brothers(ravi, ajay)

people\_relations = [brothers\_relation]

if are\_ravi\_and\_ajay\_brothers(people\_relations):

print("Ravi and Ajay are brothers.")

else:

print("Ravi and Ajay are not brothers.")

**Output:**

Ravi and Ajay are brothers.

**(iv) Chinky is a cat**

class Animal:

def \_\_init\_\_(self, name):

self.name = name

class Cat(Animal):

pass

def is\_chinky\_a\_cat(animals):

for animal in animals:

if isinstance(animal, Cat):

return True

return False

# Example usage

chinky = Cat("Chinky")

other\_animal = Animal("Dog")

animals = [chinky, other\_animal]

if is\_chinky\_a\_cat(animals):

print("Chinky is a cat.")

else:

print("Chinky is not a cat.")

**output**

Chinky is a cat.