Polynomial Manipulation

class Polynomial:

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

self.coeffs=coeffs

def evaluate(self,x):

result=0

for exp,coeff in self.coeffs.items():

result+= coeff\*(x\*\*exp)

return result

def \_\_add\_\_(self,other):

result\_coeffs={}

for exp,coeff in self.coeffs.items():

result\_coeffs[exp]=coeff

for exp,coeff in other.coeffs.items():

result\_coeffs[exp]= result\_coeffs.get(exp,0)+ coeff

return Polynomial(result\_coeffs)

def \_\_str\_\_(self):

terms=[]

for exp,coeff in self.coeffs.items():

if exp==0:

term=str(coeff)

elif exp==1:

term= f"{coeff}x"

else:

term= f"{coeff}x^{exp}"

terms.append(term)

return "+".join(terms)

p1=Polynomial({2:3,1:2,0:5})

p2=Polynomial({2:2,1:-1,0:3})

print("Polynomial 1 : ", p1)

print("Polynomial 2 : ",p2)

sum\_poly= p1+p2

print("Sum : ", sum\_poly)

x\_val=2

print(f"Evaluating at x = {x\_val}:")

print("Poly 1 : ",p1.evaluate(x\_val))

print("Poly 2 : ",p2.evaluate(x\_val))

print("Sum : ",sum\_poly.evaluate(x\_val))

Output:

Polynomial 1 : 3x^2+2x+5

Polynomial 2 : 2x^2+-1x+3

Sum : 5x^2+1x+8

Evaluating at x = 2:

Poly 1 : 21

Poly 2 : 9

Sum : 30