Pearson Correlation Analysis

Step 1: Calculate means

x̄ (Mean of Days Active) = 142.5592

ȳ (Mean of New Users) = 243528.0678

x̄ = (Σx) / n = 12402.6536 / 87 = 142.5592

ȳ = (Σy) / n = 21186941.8967 / 87 = 243528.0678

Step 2: Calculate deviation scores

dx = x - x̄

dy = y - ȳ

First few values of dx: [-13.35881179 109.45011631 -32.17917971 -94.44303972 88.72795473]

First few values of dy: [ 105112.73222133 18050.04198877 -113644.75615076 -105003.91615076  
 106511.30152366]

Step 3: Calculate product of deviation scores

dxdy = dx \* dy

First few values of dxdy: [-1404181.20657806 1975579.19506995 3656995.03078767 9916889.02414959  
 9450529.94004148]

Step 4: Square deviation scores

dx² = dx \* dx

dy² = dy \* dy

First few values of dx²: [ 178.45785247 11979.32796025 1035.49960653 8919.48775221  
 7872.64995093]

First few values of dy²: [1.10486865e+10 3.25804016e+08 1.29151306e+10 1.10258224e+10  
 1.13446574e+10]

Step 5: Sum all calculated values

Σdxdy = 9433174.1967

Σdx² = 205964.7346

Σdy² = 928227409561.2941

Step 6: Calculate correlation coefficient

r = Σdxdy / √(Σdx² \* Σdy²)

r = 9433174.1967 / √(205964.7346 \* 928227409561.2941)

r = 9433174.1967 / 437243767.3570

r = 0.021574



