

Shri Vile Parle Kelavani Mandal's

DWARKADAS J. SANGHVI COLLEGE OF ENGINEERING



(Autonomous College Affiliated to the University of Mumbai) NAAC Accredited with "A" Grade (CGPA: 3.18)

Academic Year: 2022-2023

Name:	Prerna Sunil Jadhav
Sap Id:	60004220127
Class:	T. Y. B. Tech (Computer Engineering)
Course:	Advance Algorithm Laboratory
Course Code:	DJ19CEL602
Experiment No.:	01-C

AIM: Perform Amortized Analysis of Multipop / Dynamic Tables / Binary Counter using Aggregate, Accounting and Potential method. (Amortized Analysis)

1C) Amortized Analysis (Potential method)

CODE:

```
def potential(n):
    size = 1
    total = 0
    dcost = 0
    icost = 0
    bank = 0
    phi = 0
    ci = 0
    phi_prev = 0
    print("Elements\tDoubling Copying Cost\tInsertion Cost\tTotal
Cost\t\tBank\t\tSize\t\tPhi\t\tCi")
    for i in range(1, n + 1):
        icost = 1
        if i > size:
            size *= 2
            dcost = i - 1
        total = icost + dcost
        phi = 2 * i - size
        ci = total + phi - phi_prev
        bank += (3 - total)
        print(i, "\t\t\t", dcost, "\t\t", icost, "\t", total, "\t\t\t",
bank, "\t\t", size, "\t\t", phi, "\t\t", ci)
        icost = 0
        dcost = 0
        phi_prev = phi
potential(10)
```



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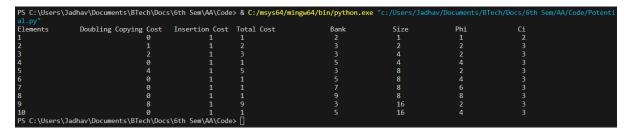
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OUTPUT:



CONCLUSION: Hence we studied amortized analysis-Potential method.