

Assignment1

Payal Chavan
CS5800 Algorithms

payalchavan@Payals-MacBook-Air /Users/payalchavan/Documents/Algorithms
⚡ /usr/bin/python3 /Users/payalchavan/Documents/Algorithms/Assignment-1.py
Dividing 1234 by 3 using divide function: Quotient = 411, Remainder = 1
Dividing 1234 by 3 using // operator: Quotient = 411, Remainder = 1

Dividing 76543 by 41 using divide function: Quotient = 1866, Remainder = 37
Dividing 76543 by 41 using // operator: Quotient = 1866, Remainder = 37

Dividing 98436785 by 571 using divide function: Quotient = 172393, Remainder = 382
Dividing 98436785 by 571 using // operator: Quotient = 172393, Remainder = 382

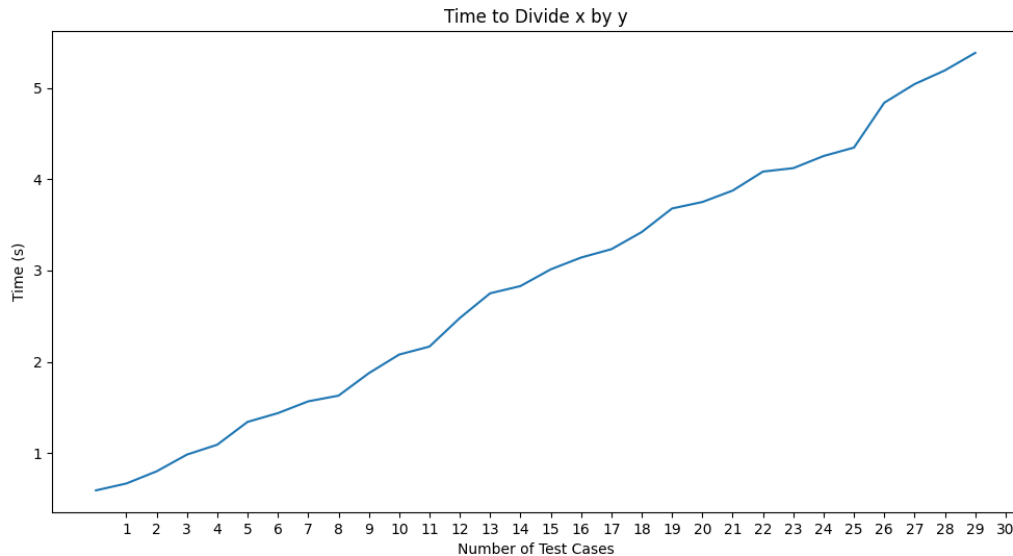
Dividing 12457801 by 67 using divide function: Quotient = 185937, Remainder = 22
Dividing 12457801 by 67 using // operator: Quotient = 185937, Remainder = 22

Dividing 5067340011 by 79 using divide function: Quotient = 64143544, Remainder = 35
Dividing 5067340011 by 79 using // operator: Quotient = 64143544, Remainder = 35

Dividing 3 by 1
Dividing 7 by 3
Dividing 9 by 5
Dividing 21 by 4
Dividing 54 by 25
Dividing 125 by 8
Dividing 170 by 17
Dividing 380 by 31
Dividing 786 by 731
Dividing 1430 by 497
Dividing 3496 by 486
Dividing 5263 by 5258
Dividing 9328 by 4786
Dividing 28139 by 13889
Dividing 42086 by 8382
Dividing 122282 by 53682
Dividing 246026 by 66216
Dividing 271559 by 187301
Dividing 993220 by 659747
Dividing 1113129 by 153762
Dividing 2675885 by 566003
Dividing 7132152 by 4742114
Dividing 9292101 by 7764416
Dividing 16891064 by 14185425
Dividing 50367023 by 33490788

Dividing 129779746 by 99586315
Dividing 167984275 by 126755632
Dividing 535161784 by 189107400
Dividing 678026866 by 519831896
Dividing 1546343914 by 1378035525

Graph of Division Algorithm:



Reflection:

From this coding and analysis exercise, I learned how to express an algorithm using pseudocode. Additionally, I gained a deeper understanding of the recursive division algorithm.

I also explored the `randrange()` and `randint()` functions, that are used to generate the random integers.

I utilized the `time.perf_counter()` function to measure time in seconds accurately.

I learnt how to generate a graph that depicts the relationship between time and test cases.

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3. DPV Algorithms Textbook: This textbook was a useful resource for me to understand the basics of algorithms.
4. [https://math.libretexts.org/Bookshelves/Combinatorics_and_Discrete_Mathematics/A_Spiral_Workbook_for_Discrete_Mathematics_\(Kwong\)/05%3ABasic_Number_Theory/5.02%3ADivision_Algorithm](https://math.libretexts.org/Bookshelves/Combinatorics_and_Discrete_Mathematics/A_Spiral_Workbook_for_Discrete_Mathematics_(Kwong)/05%3ABasic_Number_Theory/5.02%3ADivision_Algorithm): This resource helped me understand the working of division algorithm in a simple way.