

Programming

For Loops Homework 2

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Problem #1: Printing X

- Read in a **odd** Integer N, then print an X using * as follows:
 - Hint: Given i-th line at j-th digit, find the **2 conditions** to print a star



Problem #2: Special Sum

- This problem was homework in while loops
 - Given a, b, c, \dots , etc \Rightarrow compute $(a, b*b, c*c*c, d*d*d*d, e*e*e*e*e\dots)$
- Now, solve with for-loops
- Input:
 - 2
 - 3 5 7 2
 - 4 1 2 3 4
- Output
 - 62 [as $(5 + 7*7 + 2*2*2) = 62$]
 - 288 [as $(1+2*2+3*3*3+4*4*4*4) = 288$]

Problem #3: Faster Triples

- Read positive n, m, w , Find all triples where $A + B \leq C$, and:
 - $1 \leq A \leq n$
 - $A \leq B \leq m$
 - $1 \leq C \leq w$
- Example:
 - $100\ 200\ 20 \Rightarrow 715$
- In the lecture, we implemented the slow version
- Find a condition that allows us remove the last loop
 - Overall 2 nested loops only

Problem #4: Digit Sum in a Range

- Read three integers; N, A, and B
- Print the sum of the numbers between 1 and N, whose sum of digits is between A and B.
- Input \Rightarrow output
 - 20 2 5 \Rightarrow 84
 - The numbers from 1 to 20, whose sums of digits are between 2 and 5 are:
2,3,4,5,11,12,13,14, 20. Add these up to get 84!
 - e.g. digits sum of 13 is 4: which is between (2, 5)
 - 10 1 2 \Rightarrow 13
 - 100 4 16 \Rightarrow 4554

“Acquire knowledge and impart it to the people.”

“Seek knowledge from the Cradle to the Grave.”