DCP1203 HW9

11/28

Outline

- Announcements
- Discussion of HW8
- Problems of HW9

Announcements

Announcements

- **12/5 Lab Quiz 2!**
- Range: HW7~HW9

HW8: Discussion

3

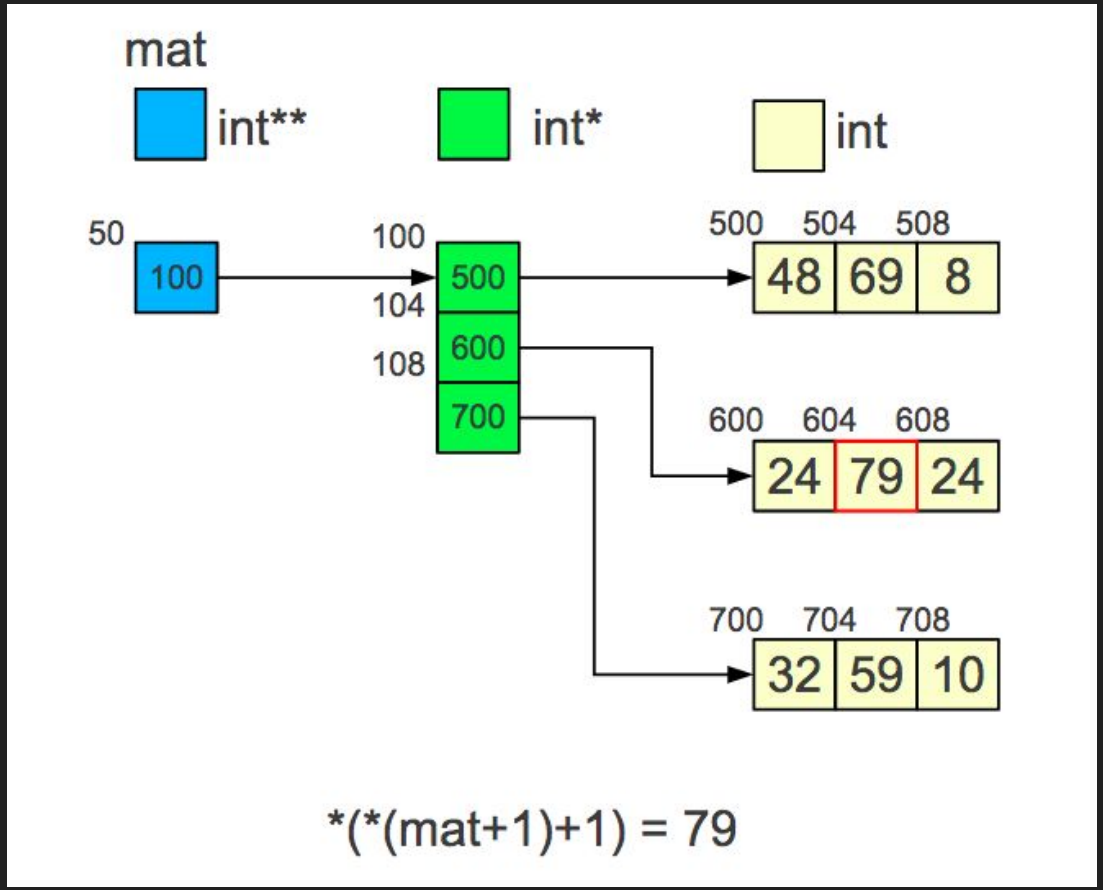
- Please use the function prototype `int ** matrixMultiplication(int **, int **);` to do matrix multiplication.

3

- malloc https://goo.gl/G8v5th
- Directly declare them as:

```
int row_0[rowNum];
int row_1[rowNum];
int row_2[rowNum];
int *allRows[colNum];
allRows[0] = row_0;
...
```

3


mat
int**
int*
int
50
100
100
500
104
600
108
700
500 504 508
48 69 8
600 604 608
24 79 24
700 704 708
32 59 10
((mat+1)+1) = 79

HW9: Problems

1

- Please use **struct** to store the coordinate of points, and calculate distance of two points.
  Hint: you can use the function prototype:
  double dist(your_struct_of_point, your_struct_of_point);

1

```
Enter the coordinate of first point in x,y:
3,4

Enter the coordinate of second point in x,y:
0,0

The distance of two points is: 5.000000
```

2

- (use 2_3.c) Leon just started a home teaching group with eight students. The information of students contains name, birthday, grades of chinese, math, and english. Please implement the function happy_birthday to help Leon know when his students will have birthday.
- `void happy_birthday(struct data student[], int month);`

2

```
Please enter the month:5
The Longevity god on the month you input are:
Name: Marry Chen
Birthday: 88/5/27
Math score is: 93
==================
Name: Tomas Chu
Birthday: 88/5/18
Math score is: 50
==================
The lowest average score is: John Hsu
```

3

- (use 2_3.c) Please implement the function min_grade to help Leon know which student he should spend more time on.
- `int min_grade(struct data student[]);`
- It will return the index value of the student in data, which has the lowest average grades.

4

- Write a program to calculate the score of sequence containing **'O'** and **'X'**
- **'O'**: correct answer; **'X'**: wrong answer
- The score of each problem calculated by the number of consecutive 'O's appeared previously. The score starts with **1**. Once a 'X' is encountered, the score will be reset.
- Score of "OOXXOXXOOO" is 10
  -> 1+2+0+0+1+0+0+1+2+3
- The input sequence length L , where 0 < L <= 80.

4

- Sample :
  Input : OOOOXOOOOXOOOOX
  Output : 30
- Ans = 1+2+3+4+0+1+2+3+4+0+1+2+3+4+0 = 30

5

- B2-Sequence: a sequence of positive integers $1 \leq b1 < b2 < b3 \ldots$ such that **all pairwise sums $b_i + b_j$, where $i \leq j$, are different**
- Input sequence length = N, $2 <= N <= 100$
  Numbers in sequence = b_is, b_is $<= 10000$

5

- Sample :
  Input : 1 2 4 8
  Output : It is a B2-Sequence.
  Input : 3 7 10 14
  Output : It is not a B2-Sequence.

6

- Write a program to solve a linear equation with **1 variable x**. (Example: 2x − 4 + 5x + 300 = 98x)
- **The input will be an equation line with:**
  - No parenthesis
  - Length: at most 255 characters
  - No blank character
  - Always use the lower-case character 'x'
  - Coefficients: [0,1000](inclusive)
- If S is the solution, output $\lfloor S \rfloor$ (**the "floor" of S**)
- No solution: output '**IMPOSSIBLE**'
- Infinite solution: output '**IDENTITY**'

6

- Sample :
  Input : 2x-4+5x+300=98x
  Output : 3
  Input : x+2=2+x
  Output : IDENTITY