Maximum Score

Problem Code: **MAXSC**

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You are given **N** integer sequences $A_1, A_2, ..., A_N$. Each of these sequences contains **N** elements. You should pick **N** elements, each from one sequence; let's denote the element picked from sequence A_i by E_i. For each **i** ($2 \le i \le N$), E_i should be strictly greater than E_{i-1}.

Compute the maximum possible value of $E_1 + E_2 + ... + E_N$. If it's impossible to pick the elements $E_1, E_2, ..., E_N$, print -1 instead.

Input

- The first line of the input contains a single integer **T** denoting the number of test cases. The description of **T** test cases follows.
- The first line of each test case contains a single integer **N**.
- **N** lines follow. For each valid **i**, the **i**-th of these lines contains **N** space-separated integers $A_{i1}, A_{i2}, ..., A_{iN}$ denoting the elements of the sequence A_i.

Output

For each test case, print a single line containing one integer — the maximum sum of picked elements.

Constraints

- $1 \le T \le 10$
- $1 \le N \le 700$
- 1 ≤ sum of **N** in all test-cases ≤ 3700
- $1 \le A_{ij} \le 10^9$ for each valid **i**, **j**

Subtasks

Subtask #1 (18 points): $1 \le A_{ij} \le N$ for each valid **i**, **j**

Subtask #2 (82 points): original constraints

Example

```
Input:

1
3
1 2 3
4 5 6
7 8 9

Output:

18
```

Explanation

Example case 1: To maximise the score, pick 3 from the first row, 6 from the second row and 9 from the third row. The resulting sum is $E_1+E_2+E_3$ = 3+6+9 = 18.

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Time Limit: 1 secs

Source Limit: 50000 Bytes

Languages: ADA, ASM, BASH, BF, C, CAML, CLOJ, CLPS, CPP 4.3.2, CPP 6.3, CPP14, CS2, D, ERL, FORT, FS, GO, HASK, ICK, ICON, JAVA, JS, kotlin, LISP clisp, LISP sbcl, LUA, NEM, NICE, NODEJS, PAS fpc, PAS gpc, PERL, PERL6, PHP, PIKE, PRLG, PYPY, PYTH, PYTH 3.5, RUBY, rust, SCALA, SCM chicken, SCM guile, SCM qobi, ST, swift, TCL, TEXT, WSPC

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