

# ACM-ICPC Programming Contest



event  
sponsor

University of Puerto Rico, Río Piedras campus  
Caribbean Local Contest 2017 at UPR-RP Computer Science Department

# For any question, please contact

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- Webpage for links and more information:  
<http://ccom.uprrp.edu/~rmegret/teaching/icpc2017.html>

# Today

- Online judges
  - How it works
  - How to train, useful links
- ICPC Competition
  - Organization
  - How to register

# Online judge

# Programming contest: COJ



# Caribbean Online Judge

Thinking better!

US 🇺🇸 🇪🇺

? 🗺

🔔 The 2016 ACM-ICPC Caribbean Finals (Regional Contest)  
🔔 The 2016 ACM-ICPC Caribbean National Contests 🔔 The 2016 ACM-ICPC Caribbean Local Contests

🏠 HOME 📄 DOWNLOADS 🛠 TOOLS 🗨 FORUM 📄 FAQ 🔗 LINKS 📄 ABOUT ✉ CONTACT US

AUGUST 29, 2016 - 10:03:30

## Welcome to the Caribbean Online Judge (COJ)!

Users COJboard

1 2 3 4 5 6 7 8 ▶▶▶

### Entries

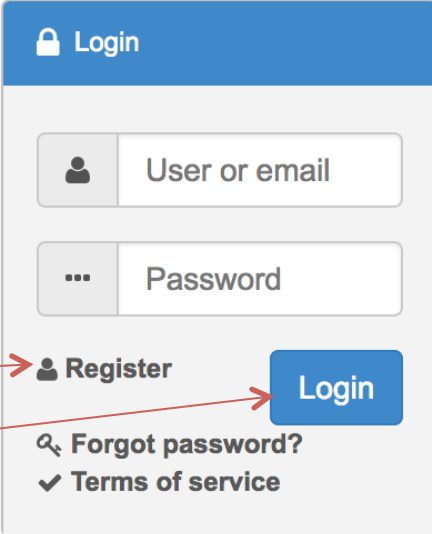
|   |   |                     |   |
|---|---|---------------------|---|
|    | <b>JackU</b><br>Invito a todos mis compañeros a practicar en este juez en linea para continuar practicando para mejorar sus habilidades en la programación...   | 2016-08-23 18:32:10 | 1 |
|  | <b>carlosf</b><br>Invitamos a los usuarios del COJ de paises de Centroamérica a continuar practicando y mejorando sus habilidades de programación y a que se incorporen al Concurso ICPC en la región de México & Centroamérica. Contáctanos enviando un correo a acm@iteso.mx. | 2016-08-20 13:53:09 | 1 |
|  | <b>frankr</b><br>Y acá está un juez en línea por si se animan a programar alguno, ☺ ya q los casos de prueba son ~800Mb! <a href="https://contest.yandex.com/ioi/?locale=en">https://contest.yandex.com/ioi/?locale=en</a>  | 2016-08-17 16:12:10 | 2 |

<http://coj.uci.cu/index.xhtml>

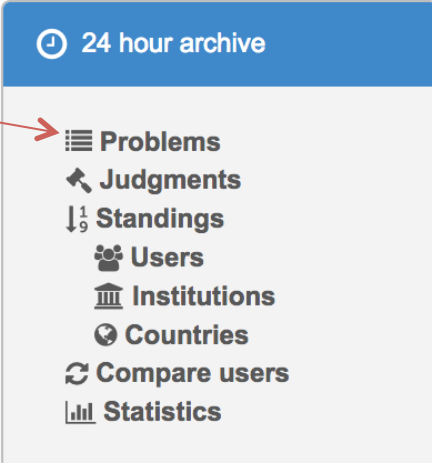
# Training on COJ

3 simple steps:

- Register
- Log-in
- Solve problems from the 24h archive



The screenshot shows the 'Login' page of the COJ system. It features a blue header with a lock icon and the text 'Login'. Below the header are two input fields: 'User or email' with a person icon and 'Password' with a three-dot icon. At the bottom of the form, there is a 'Register' link with a person icon, a blue 'Login' button, and two links: 'Forgot password?' with a magnifying glass icon and 'Terms of service' with a checkmark icon.



The screenshot shows the '24 hour archive' page of the COJ system. It features a blue header with a clock icon and the text '24 hour archive'. Below the header is a list of menu items: 'Problems' with a list icon, 'Judgments' with a hand icon, 'Standings' with a downward arrow and a '9' icon, 'Users' with a group of people icon, 'Institutions' with a building icon, 'Countries' with a globe icon, 'Compare users' with a refresh icon, and 'Statistics' with a bar chart icon.

# Problem Archive

## 24 hour archive: Problems

Look for specific problem

Search by topics

Complexity

Solved/Recommended...

|  |   |   |   |   |   |   |   |   |      |
|--|---|---|---|---|---|---|---|---|------|
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | ▶▶▶▶ |
|--|---|---|---|---|---|---|---|---|------|

| ID     | Status | Title                | Sub   | AC    | AC%   | Score |
|--------|--------|----------------------|-------|-------|-------|-------|
| 1000 ☆ | ⊖      | A+B Problem          | 29524 | 15039 | 50,94 | 0,02  |
| 1002 ☆ |        | New House            | 2880  | 1087  | 37,74 | 0,21  |
| 1003 ☆ |        | General Election     | 8781  | 3922  | 44,66 | 0,06  |
| 1004 ☆ |        | Traversing Grid      | 4813  | 1945  | 40,41 | 0,11  |
| 1009 ☆ |        | Arranging Amplifiers | 1090  | 225   | 20,64 | 1,10  |
| 1011 ☆ |        | Army Strength        | 4704  | 1105  | 23,49 | 0,21  |
| 1014 ☆ |        | Traditional BINGO    | 753   | 278   | 36,92 | 0,65  |
| 1016 ☆ |        | Freckles             | 1931  | 699   | 36,20 | 0,35  |
| 1017 ☆ |        | Three powers         | 542   | 289   | 53,32 | 0,65  |

Submitted Accepted Acceptance rate Points if you solve it




# Problem page

<http://coj.uci.cu/24h/problem.xhtml?pid=1000>

Submit My submissions Submissions Best solutions PDF Translation

## 1000 - A+B Problem

|                   |   |
|-------------------|---|
| Statistics        | <b>Sub:</b> 29524   <b>AC:</b> 15039   <b>AC%:</b> 50,94   <b>Score:</b> 0,02   |
| Created by        | Typical problem (almost every online judge include it)  |
| Added by          | cjoa (2011-10-13)   |
| Limits            | <b>Total Time:</b> 10000 MS   <b>Test Time:</b> 2000 MS   <b>Memory:</b> 62 MB   <b>Output:</b> 64 MB   <b>Size:</b> 9 KB |
| Enabled languages | C++   |
| Available in      |    |

### Description

For this problem you must calculate **A + B**, numbers given in the input.

### Input specification

The only line of input contain two space separated integers **A, B** ( $0 \leq A, B \leq 10$ ).

### Output specification

The only line of output should contain one integer: the sum of **A** and **B**.

### Sample input

```
1 2
```

### Sample output

```
3
```

### Hint(s)

Read our **FAQs** carefully to see solution samples.

### Recommendation

We have carefully selected several similar problems for you: [1049](#) | [1028](#) | [3599](#) | [1960](#) | [3314](#) | [3662](#)

Close



# Submit page

Problem ID  Filled automatically when you arrive on the page \*

Programming language  Change language to your preference

Upload or  
Type the code directly

Source code

 Upload file \*

```
#include <iostream>
using namespace std;

int main() {
    int a,b,c;

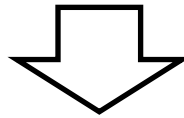
    cin >> a >> b;
    cout << a+b << endl;
}
```

When done, press Submit

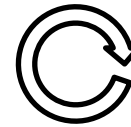
# Automatic judging by COJ

| ID     | Date                   | User | Problem | Judgment       | Time | Mem | Size | Lang |
|--------|------------------------|------|---------|----------------|------|-----|------|------|
| 977942 | 2016-08-29<br>10:24:19 | remi | 1000    | <b>Judging</b> | ...  | ... | ...  | C++  |

Wait a bit, refresh the page



Resubmit



| ID     | Date                   | User | Problem | Judgment                 | Time | Mem | Size      | Lang |
|--------|------------------------|------|---------|--------------------------|------|-----|-----------|------|
| 977943 | 2016-08-29<br>10:32:43 | remi | 1000    | <b>Compilation Error</b> | ...  | ... | 117 bytes | C++  |

Uh ?

| ID     | Date                   | User | Problem | Judgment                             | Time | Mem  | Size      | Lang |
|--------|------------------------|------|---------|--------------------------------------|------|------|-----------|------|
| 977946 | 2016-08-29<br>10:37:29 | remi | 1000    | <b>Wrong Answer</b><br><i>Test 1</i> | 36   | 1 MB | 120 bytes | C++  |

Oops...

| ID     | Date                   | User | Problem | Judgment        | Time | Mem  | Size      | Lang |
|--------|------------------------|------|---------|-----------------|------|------|-----------|------|
| 977942 | 2016-08-29<br>10:24:19 | remi | 1000    | <b>Accepted</b> | 32   | 1 MB | 120 bytes | C++  |

Yeah !!!

# Compilation error

## 24 hour archive: Submission

| ID     | Date                   | User | Problem | Judgment             | Time | Mem | Size      | Lang |
|--------|------------------------|------|---------|----------------------|------|-----|-----------|------|
| 977940 | 2016-08-29<br>10:23:00 | remi | 1000    | Compilation<br>Error | ...  | ... | 114 bytes | C++  |

Click on submission ID to access submission page

Click on error to see compilation output

```
#include <stdio>
using namespace std;
int main() {
    int a,b,c;
    cint >> a >> b;
    cout << c << endl;
}
```

??? we need iostream here, not stdio !!!

## 24 hour archive: Compile info

```
1 /root/tmp/977940/977940.cpp:1:17: fatal error: stdio: No such file or directory #include
  <stdio>                ^ compilation terminated.
```

# Wrong answer

| ID       | Date                   | User            | Problem | Judgment            | Time | Mem                | Size      | Lang               |
|----------|------------------------|-----------------|---------|---------------------|------|--------------------|-----------|--------------------|
| 977946   | 2016-08-29<br>10:37:29 | remi            | 1000    | <b>Wrong Answer</b> | 36   | 1 MB               | 120 bytes | C++                |
| AC tests |                        | Total time (ms) |         | Ave time (ms)       |      | Min test time (ms) |           | Max test time (ms) |
| 1 / 4    |                        | ...             |         | ...                 |      | 8                  |           | 11                 |

Test case verdict details ⬆

| Test | Judgment            | Time  | Mem  |
|------|---------------------|-------|------|
| 1    | <b>Wrong Answer</b> | 8 ms  | 1 MB |
| 2    | <b>Wrong Answer</b> | 11 ms | 1 MB |
| 3    | <b>Wrong Answer</b> | 8 ms  | 1 MB |
| 4    | <b>Accepted</b>     | 9 ms  | 1 MB |

[Edit](#) [Download](#) [Fraud](#)

```
1 #include <iostream>
2 using namespace std;
3
4 int main() {
5     int a,b,c;
6
7     cin >> a >> b;
8     cout << 2*a << endl;
9 }
10
```

Some tests may give the correct answer by chance...!  
In this case, test case 4 seem to have  $a=b$ , so that  $2*a == a+b$   
Correct solution:  $a+b$

# Links

- Competitive programming book:  
<https://sites.google.com/site/stevenhalim/>
- Advices on training the team  
<http://lavergne.gotdns.org/CII/papers/TrainingICPC.pdf>
- Cookbooks
  - <https://apps.topcoder.com/forums/?module=Category&categoryID=4532>
  - <https://github.com/ntuorangejuice/cheat-sheet>
  - <https://github.com/jaehyunp/stanfordacm>

# ICPC Contest

# Calendar for ICPC 2017

- **TUESDAY Sep 19:** FINAL DEADLINE for registration to CLC
- **Saturday Sep 23:** Caribbean Local Contest (CLC 2017) UPR-RP
  - Qualify at least 2 teams to CNC
  - Organized at CCOM department
- **Saturday Oct 7:** Caribbean National Contest (CNC 2017)
  - Puerto Rican CNC hosted by [UPR Ponce ? UPR Ciencias Medicas ?]
- **Nov 11-12 2016:** Caribbean Regional Finals (RF 2017)
  - Hosted by PUCMM, Dominican Republic
- **April 15-20 2018:** World finals (WF 2018) in China

# Team composition

- 1 Team
  - 1 Name
  - 3 Students
  - 1 Coach (non-competing student or faculty)
  - Composition does not change from locals to finals
- Eligibility constraints
  - Started University in 2013 or later
  - OR
  - Born in 1994 or later

Detailed rules : <https://coj-forum.uci.cu/viewtopic.php?f=75&t=3292>



# Eligibility details for CLC 2017

- All teams consist strictly of three contestants.
- All contestants must satisfy all of the basic requirements:
  - A contestant knows and will strictly abide by the [Official Rules](#).
  - A contestant is not currently sanctioned by the ACM-ICPC.
  - A contestant is willing to compete at all levels (including the World Finals).  
**Apply for your passport now !**
  - A contestant must be enrolled in a Higher Education program.
  - A contestant may compete for only one institution during the contest year.
  - A contestant who has competed in five Regional Contests is NOT eligible to compete.
  - A contestant who has competed in two World Finals is NOT eligible to compete.
- All contestants must satisfy at least one of the eligibility condition):
  - A contestant FIRST began post-secondary studies in 2013 or later.
  - A contestant was born in 1994 or later.

# Register here:

<https://icpc.baylor.edu/register>

- Instructions and help:  
<https://coj-forum.uci.cu/viewtopic.php?f=75&t=3298>
- Step 1:
  - Coach creates the team, fill in contestant email
  - Contestants receive email to fill in their personal info
- Step 2:
  - When no more information is missing, ICPC CLC director validates the team registration
  - Tuesday is deadline for Step 2!

# Information needed to register

- **General info:**
  - **Title:** Título académico o personal (ej.: Mr., Mrs. o Professor).
  - **First name:** Nombre y, en caso de tenerlo, segundo nombre (ej.: Dovier Antonio).
  - **Last name:** Los dos apellidos (ej.: Ripoll Méndez).
  - **Email:** Dirección completa de correo (ej.: [daripoll@uci.cu](mailto:daripoll@uci.cu)).
  - **Badge name:** Nombre completo para la credencial del participante (ej.: Dovier Antonio Ripoll Méndez).
  - **Certificate name:** Nombre completo para el certificado de participación (ej.: Dovier Antonio Ripoll Méndez).
  - **Home city:** Ciudad de nacimiento (ej.: Florida).
  - **Home state (if appl.):** Estado o provincia de nacimiento (ej.: Camagüey).
  - **Home country:** País de nacimiento (ej.: Cuba).
  - **Residence country:** País de residencia (ej.: Cuba).
  - **Occupation (student.):** Ocupación (ej.: Student o Professor).
  - **Institution/Employment/Company:** Institución representada (ej.: Universidad de las Ciencias Informáticas).
  - **Special needs:** Necesidades especiales personales (ej.: Wheelchair o Insulin shots). Si no hay ninguna se deja en blanco.
  - **ACM ID:** Número de identificación en la ACM, que es obtiene al tener una membresía en dicha Asociación. En caso de no tener se especifica la palabra FREE.
  - **Date of birth:** Fecha de nacimiento (ej.: 06/18/1984)

# Information needed to register II

- **Contact info:**
  - **Phone:** Teléfono fijo de contacto. Se prefiere el formato internacional GSM (ej.: +5378372491).
  - **Home airport code:** Código IATA del aeropuerto (ej.: HAV).
  - **Emergency contact number (other than your own):** Número de teléfono para notificar en caso de emergencia (típicamente se especifica el número de teléfono de un familiar cercano). Se prefiere el formato internacional GSM (ej.: +5378358886).
  - **Emergency contact name (for the number):** Nombre del familiar cercano para notificar en caso de emergencia.
- **Address:**
  - **Company / Street:** Nombre de la institución representada (ej. Universidad de las Ciencias Informáticas).
  - **Street line 2:** ej. Carretera a San Antonio de los Baños, km 2 1/2
  - **Street line 3:** ej. Rpto. Lourdes, La Lisa
  - **City:** ej. La Habana
  - **Postal code (ZIP):** ej. 19370
  - **Country:** ej. Cuba
- **Degree info:**
  - **Area of study:** Área o campo de estudio (ej.: Informatics Sciences).
  - **Degree pursued:** Grado o título académico al que se aspira (ej.: Engineer).
  - **Start of Bachelor deg.:** Fecha en que comenzó la Educación Superior (ej.: 09/01/2013).
  - **Expected graduation:** Fecha en que debe terminar la Educación Superior (ej.: 07/19/2018).

# (Tentative) Contest organization

**Sept 23<sup>st</sup>, 2017. Computer Science Department UPR-RP**

| Time                           | Activity   | Room           | Participants                        |
|--------------------------------|--|----------------|-------------------------------------|
| <b>08:30 a.m. – 09:00 a.m.</b> | <b>Account setup*</b>                            | Contest room   | Contestants, Coaches                |
| <b>09:00 a.m. – 09:20 a.m.</b> | <b>Opening and instructions*</b>                 | Contest room   | All                                 |
| <b>09:30 a.m. – 09:50 a.m.</b> | <b>Practice contest*</b>                         | Contest room   | Contestants                         |
| <b>10:00 a.m. – 02:00 p.m.</b> | <b>Real contest (4h) *</b>                       | Contest room   | Contestants                         |
| 10:00 a.m. – 02:00 p.m.        | Spectator gallery                                | Spectator room | Public, including coaches           |
| 11:30 a.m. - 12:00 p.m.        | Snacking   | Corridor       | Contestants, Coaches and Organizers |
| <b>02:00 p.m. - 03:00 p.m.</b> | <b>Lunch</b>                                     | Corridor       | Contestants, Coaches and Organizers |
| <b>03:30 p.m. - 04:00 p.m.</b> | <b>Prize ceremony and analysis of solutions*</b> | Contest room   | All                                 |

Activities marked with \* are mandatory for contestants

# Real contest: equipment

- Provided: preinstalled computer
  - Linux system
  - Code editors (Emacs, Vi, gedit, Eclipse...)
  - Local compilers: GCC, Java, Python
  - Documentation: man pages, Java SDK doc, C++ STL doc...
- Allowed: paper documentation
  - Dictionary, printed books, personal notes... everything you got!
- Not allowed: any electronic devices
  - No mobile phone, laptop, computer peripherals (USB key, mouse...), audio/video recorder, calculator...

# Real contest: dynamic

- Number of problems: at least 8
  - In Caribbean contests, given both in English and Spanish.
  - Language for submissions: C, C++, C++11, Java, Python, C#
- Duration 4h
  - First 3h10: normal time
    - teams can see ranking and judgments of everyone
  - Last 48 minutes: frozen time
    - ranking is not updated
    - teams can see only their own judgment
  - Last 12 minutes: dead time
    - neither ranking nor judgments are visible
- You get a colored balloon each time you solve a problem :-)



# Standings (rank)

- First ranked by number of problems solved
- If equal, sort by accumulated time for solving
  - Ex: If solved 2 problems,  
P5 at time 1:30 and P2 at time 2:00  
then accumulated time will be  $1:30+2:00=3:30$
- If equal, sort by time to solve last problem
- Penalties
  - Each rejected submission for a problem adds 00:20  
(not counted if problem is not solved in the end)



# Prizes

- Local contest
  - Best three teams



- Qualification to next round
  - First 2 UPR-RP teams qualify for Puerto Rican National Contest, held Oct 15.
  - Depending on availability, more teams may be invited (must solve at least one problem)

# Links

- UPR-RP Local page:
  - <http://ccom.uprrp.edu/~rmegret/teaching/icpc2017.html>
- COJ:
  - <http://coj.uci.cu/index.xhtml>
  - <http://coj.uci.cu/contest/contestview.xhtml?cid=1495>
- ICPC 2017 Forum:
  - <https://coj-forum.uci.cu/viewforum.php?f=43>
  - <https://coj-forum.uci.cu/viewforum.php?f=75>