Practice Problems

The following problems are designed to ensure that each team is able to submit a test program to the scoring website, and that your program is able to read input (STDIN) from the scoring website, and that the scoring website is able to read output (STDOUT) from your program.

Practice Problem 1: Testing Output

5 minutes, 10 points
Filename: prac01 *(e.g. prac01.c, prac01.cpp, prac01.java, prac01.py2, prac01.py3)*

Description
This problem will ensure that the scoring website is able to read output (STDOUT) from your program. Your program does not need to read input for this problem.

Output a single line containing the message “Hello, World!”. Be sure your output includes the **exact** same **case**, **punctuation**, and **spacing** shown in the sample output. Only use a single space unless instructions specifically tell you otherwise.

Sample Input

```
None
```

Sample Output

```
Hello, World!
```

Hints
Need help writing to Standard Output? See the Sample Solutions for this problem on the next page.

Learn More
While small test programs have existed since the development of programmable computers, the tradition of using the phrase "Hello, world!" as a test message was influenced by an example program in the seminal book The C Programming Language.

The example program from that book prints "hello, world" (without capital letters or exclamation mark), and was inherited from a 1974 Bell Laboratories internal memorandum by Brian Kernighan, Programming in C.A Tutorial:

```
#include <stdio.h>

main( )
{
        printf("hello, world\n");
}
```

https://en.wikipedia.org/wiki/”Hello,_World!”_program
Prepared by Jason Klein. Adapted from CodeWars.

Practice Problem 1: Sample Solutions

See below for **Practice Problem 1** solutions written in **Java, Python 2, Python 3, C, and C++**.

Each solution demonstrates how to output strings to Standard Output (STDOUT). **Each solution has been tested with our scoring system.**

Each solution also demonstrates how to compile the program and how to read input from a text file during runtime. Each program will generate the **Sample Output** shown below.

Sample Output

```
Hello, World!
```

Sample Java Code (prac01.java)

```
import java.io.*;

public class prac01 {
    public static void main(String[] args) {
        System.out.println("Hello, World!");
    }
}
```

Compile, Run

```
javac prac01.java
java prac01
```

Sample Python2 Code (prac01.py2)

```
print "Hello, World!"
```

Run

```
python2 prac01.py2
```

Sample Python3 Code (prac01.py3)

```
print("Hello, World!")
```

Run

```
python3 prac01.py3
```

Check Python Version

```
python -V
```

This will output the exact version, such as “Python 2.7.13” for **Python 2** or “Python 3.5.3” for **Python 3**.

Sample C Code (prac01.c)

```
#include <stdio.h>

int main() {
    printf("Hello, World!\n");
    return 0;
}
```

We recommend using the C11 standard. Be sure to return 0 in your code. A missing or different return statement might result in invalid exit codes that the scoring system interprets as a Runtime Error.

Compile, Run

```
gcc prac01.c -o prac01
./prac01
```

Sample C++ Code (prac01.cpp)

```
#include <iostream>

using namespace std;

int main() {
    cout << "Hello, World!" << endl;
    return 0;
}
```

We recommend using the C++14 standard. Be sure to return 0 in your code. A missing or different return statement might result in invalid exit codes that the scoring system interprets as a Runtime Error.

Compile, Run

```
g++ prac01.cpp -o prac01
./prac01
```