

# Automated Student Program Marking With The Web-CAT System

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# Your Program Is Finally Ready

- Program has been
  - Designed
  - Written
  - Tested
  - It is perfect!
- Submit it to Web-CAT
  - A unit-testing based computer system for marking student assignments
  - Primary development at Virginia Tech University
  - Installed also on the server “seal” at the University of Mauritius
- Go to “<http://seal.uom.ac.mu:8080/Web-CAT>”


# Using Web-CAT: (1) Login

Web-CAT: Login


http://seal.uom.ac.mu:8080/Web-CAT/WebObjects/Web-CAT.woa

Apple (99) Amazon eBay Yahoo! News (749)

## Web-CAT



Automatic Grading Using Student-written Tests



Welcome to the **Web Center for Automated Testing** (Web-CAT).  
Only registered users may use Web-CAT. Please login:

User Name:

Password:

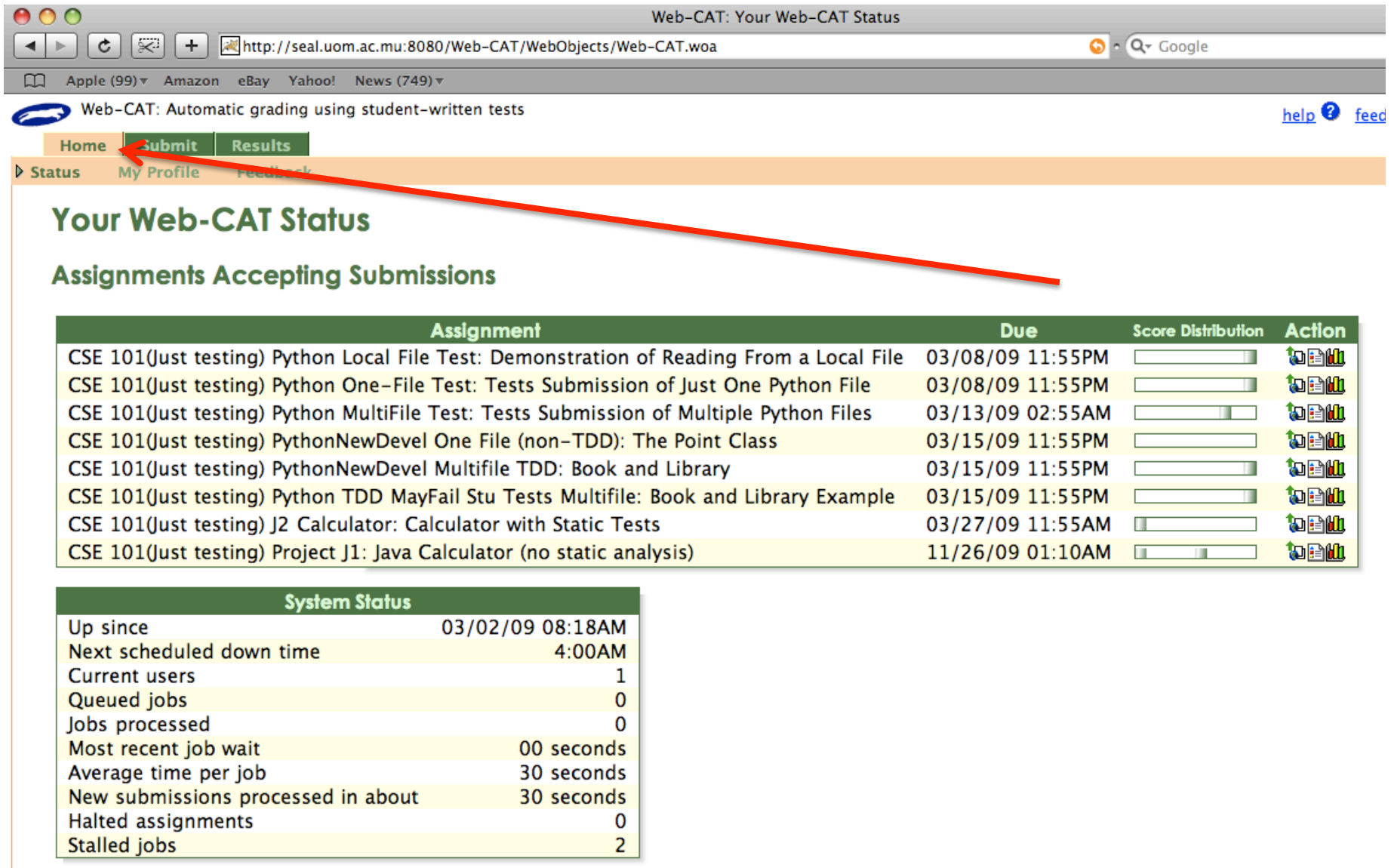
[Forgot your password?](#)

View **system status** using your **Home** tab after logging in.

If you teach at another university and are interested in using Web-CAT, pl  
[webcat@seal.uom.ac.mu](mailto:webcat@seal.uom.ac.mu).

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# Using Web-CAT: (2) Home Page



The screenshot shows the Web-CAT Home Page in a web browser. The browser's address bar displays the URL `http://seal.uom.ac.mu:8080/Web-CAT/WebObjects/Web-CAT.woa`. The page title is "Web-CAT: Your Web-CAT Status". The navigation bar includes links for Home, Submit, Results, Status, My Profile, and Feedback. A red arrow points from the "Submit" button to the "Your Web-CAT Status" section. The "Your Web-CAT Status" section contains a sub-section titled "Assignments Accepting Submissions" and a "System Status" table.

Web-CAT: Automatic grading using student-written tests

[Home](#) [Submit](#) [Results](#)

[Status](#) [My Profile](#) [Feedback](#)

## Your Web-CAT Status

### Assignments Accepting Submissions

Assignment	Due	Score Distribution	Action
CSE 101(Just testing) Python Local File Test: Demonstration of Reading From a Local File	03/08/09 11:55PM	<div><div></div></div>	<a href="#">Up</a> <a href="#">Down</a> <a href="#">Refresh</a> <a href="#">Help</a>
CSE 101(Just testing) Python One-File Test: Tests Submission of Just One Python File	03/08/09 11:55PM	<div><div></div></div>	<a href="#">Up</a> <a href="#">Down</a> <a href="#">Refresh</a> <a href="#">Help</a>
CSE 101(Just testing) Python MultiFile Test: Tests Submission of Multiple Python Files	03/13/09 02:55AM	<div><div></div></div>	<a href="#">Up</a> <a href="#">Down</a> <a href="#">Refresh</a> <a href="#">Help</a>
CSE 101(Just testing) PythonNewDevel One File (non-TDD): The Point Class	03/15/09 11:55PM	<div><div></div></div>	<a href="#">Up</a> <a href="#">Down</a> <a href="#">Refresh</a> <a href="#">Help</a>
CSE 101(Just testing) PythonNewDevel Multifile TDD: Book and Library	03/15/09 11:55PM	<div><div></div></div>	<a href="#">Up</a> <a href="#">Down</a> <a href="#">Refresh</a> <a href="#">Help</a>
CSE 101(Just testing) Python TDD MayFail Stu Tests Multifile: Book and Library Example	03/15/09 11:55PM	<div><div></div></div>	<a href="#">Up</a> <a href="#">Down</a> <a href="#">Refresh</a> <a href="#">Help</a>
CSE 101(Just testing) J2 Calculator: Calculator with Static Tests	03/27/09 11:55AM	<div><div></div></div>	<a href="#">Up</a> <a href="#">Down</a> <a href="#">Refresh</a> <a href="#">Help</a>
CSE 101(Just testing) Project J1: Java Calculator (no static analysis)	11/26/09 01:10AM	<div><div></div></div>	<a href="#">Up</a> <a href="#">Down</a> <a href="#">Refresh</a> <a href="#">Help</a>

### System Status

Up since	03/02/09 08:18AM
Next scheduled down time	4:00AM
Current users	1
Queued jobs	0
Jobs processed	0
Most recent job wait	00 seconds
Average time per job	30 seconds
New submissions processed in about	30 seconds
Halted assignments	0
Stalled jobs	2

# Using Web-CAT: (3) Submit Tab



Web-CAT: Automatic grading using student-written tests

Home

Submit

Results

▶ New Submission

## New Submission

▶ Step 1

Pick the course

Step 2

Pick the assignment

Step 3

Upload your file(s)

Step 4

Confirm your submission

Step 5

View your results

## Pick the Course

Show courses for:


You are **enrolled in** these courses:

Course		Name
<input checked="" type="radio"/>	CSE 101(Just testing)	Test Class

Next >

Cancel

# Using Web-CAT: (4) Choose Assignment

 Web-CAT: Automatic grading using student-written tests [help ?](#)

[Home](#) [Submit](#) [Results](#)

▶ New Submission

### New Submission

Step 1  
Pick the course

▶ Step 2  
Pick the assignment

Step 3  
Upload your file(s)

Step 4  
Confirm your submission


Step 5  
View your results



## Pick the Assignment

For: **CSE 101(Just testing): Test Class**

	Assignment	Due
<input type="radio"/>	Python Local File Test: Demonstration of Reading From a Local File	03/08/09 11:55PM
<input type="radio"/>	Python One-File Test: Tests Submission of Just One Python File	03/08/09 11:55PM
<input type="radio"/>	Python MultiFile Test: Tests Submission of Multiple Python Files	03/13/09 02:55AM
<input type="radio"/>	Python TDD MayFail Stu Tests Multifile: Book and Library Example	03/15/09 11:55PM
<input checked="" type="radio"/>	PythonNewDevel Multifile TDD: Book and Library	03/15/09 11:55PM
<input type="radio"/>	PythonNewDevel One File (non-TDD): The Point Class	03/15/09 11:55PM
<input type="radio"/>	J2 Calculator: Calculator with Static Tests	03/27/09 11:55AM
<input type="radio"/>	Project J1: Java Calculator (no static analysis)	11/26/09 01:10AM

# Using Web-CAT: (5) Read Instructions

 Web-CAT: Automatic grading using student-written tests

[help](#)  [feedback](#)  [login](#)

[Home](#) [Submit](#) [Results](#)

▶ New Submission Wilma Flint

## New Submission

Step 1  
Pick the course


Step 2  
Pick the assignment

▶ Step 3  
Upload your file(s)

Step 4  
Confirm your submission

Step 5  
View your results

## Upload Your File(s)

For: **CSE 101(Just testing) PythonNewDevel Multifile TDD: Book and Library**  [Perma](#)

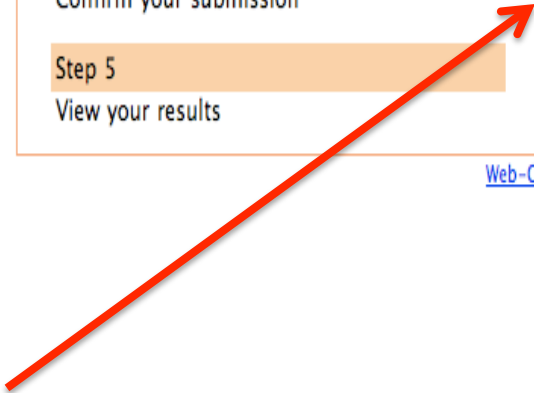
This is your first submission for this assignment.

Upload zip with 'book.py', 'booktests.py', 'library.py' and 'librarytests.py'. All of your tests MUST PASS before any other marking activities will take place.


Choose the file to upload:

no file selected

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# Using Web-CAT: (6) Attach File(s)

 Web-CAT: Automatic grading using student-written tests

[Home](#) [Submit](#) [Results](#)

▶ New Submission

## New Submission

[Step 1](#)  
Pick the course

[Step 2](#)  
Pick the assignment

▶ [Step 3](#)  
Upload your file(s)

[Step 4](#)  
Confirm your submission

[Step 5](#)  
View your results


## Upload Your File(s)

For: **CSE 101(Just testing) PythonNewDevel Multifile TDD: Book and**

This is your first submission for this assignment.

Upload zip with 'book.py', 'booktests.py', 'library.py' and 'librarytests.py'.  
other marking activities will take place.

Choose the file to upload:

 lib-student...D-good.zip

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# Using Web-CAT: (7) Confirm Submission



Web-CAT: Automatic grading using student-written tests

[Home](#)

[Submit](#)

[Results](#)

▶ [New Submission](#)

## New Submission

### [Step 1](#)

Pick the course

### [Step 2](#)

Pick the assignment

### [Step 3](#)

Upload your file(s)

### ▶ [Step 4](#)

Confirm your submission

### [Step 5](#)

View your results

## Confirm Your Submission

For: **CSE 101(Just testing) PythonNewDevel Multifile TDD: Book and Library**

Please make sure that these files constitute your full submission, and that you have not a incorrect file.

File	Size
book.py	324 bytes
library.py	986 bytes
booktests.py	1.3kb
librarytests.py	1.7kb

Click the **Next** button to confirm your submission.


You cannot take back a submission once you have clicked **Next**. If you wish to make any button instead.

[< Back](#)

[Next >](#)

[Cancel](#)


# Using Web-CAT: (8) Wait for Results

 Web-CAT: Automatic grading using student-written tests [help](#) [feedback](#) [logout](#)

[Home](#) [Submit](#) [Results](#)

▶ [Most Recent](#) [Past Results](#) [Graphs](#) Wilma Flintstone

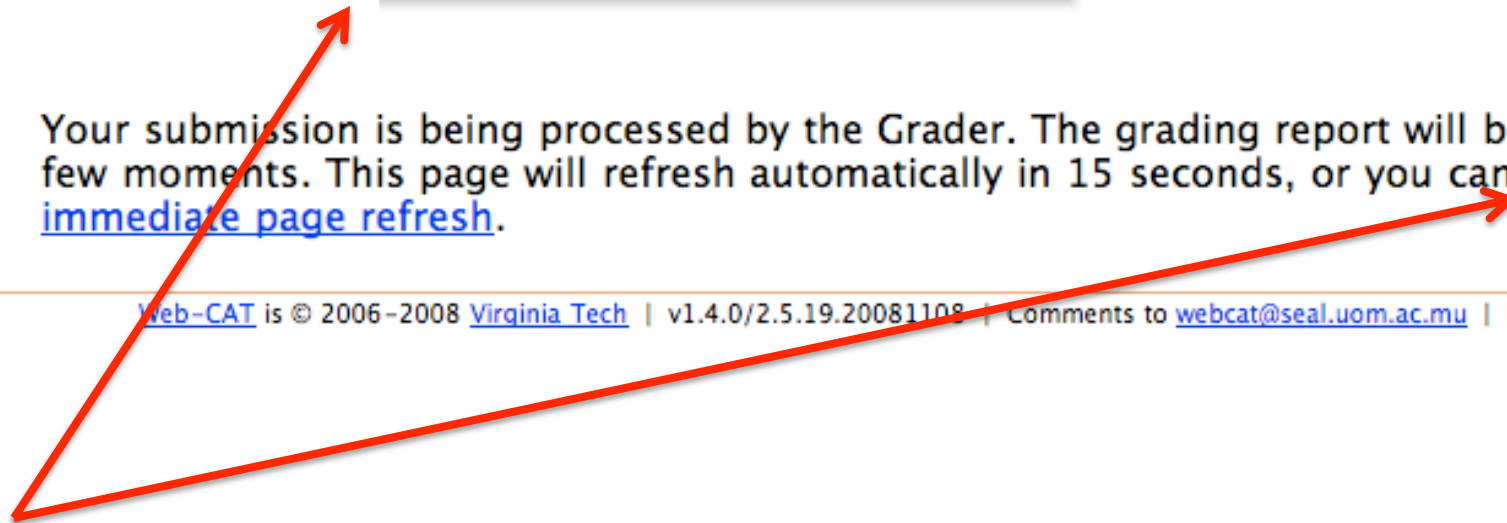
## Your Assignment Submission Results



Submission Status	
Queued jobs	1
Most recent job wait	03 seconds
Your queue position	1
Your estimated wait	02 seconds

Your submission is being processed by the Grader. The grading report will be generated in a few moments. This page will refresh automatically in 15 seconds, or you can [request an immediate page refresh](#).

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# Using Web-CAT: (9) Overview of Results



Web-CAT: Automatic grading using student-written tests

[Home](#)[Submit](#)[Results](#)[▶ Most Recent](#)[Past Results](#)[Graphs](#)

## Your Assignment Submission Results

[Submit Again](#)

<b>Assignment Name</b>	CSE 101(Just testing): PythonNewDevel Multifile TDD try #1 Wilma Flintstone (flinstone2)
<b>Submitted</b>	03/02/09 08:43AM, 13 days, 15 hrs, 11 mins early
<b>Total Score</b>	0.0 / 100.0

[Full Printable Report](#)

[+ Results From Running Your Tests \(85.7%\)](#)

[+ Interpreting Your Correctness/Testing Score \(0/100\)](#)

[Your original submission ↕](#)[Download Selected File](#)

# Using Web-CAT: (10) Examine Details

<b>Assignment Name</b>	CSE 101(Just testing): PythonNewDevel Multifile TDD try #3
<b>Submitted</b>	Wilma Flintstone (flinstone2)
<b>Total Score</b>	03/02/09 08:46AM, 13 days, 15 hrs, 8 mins early
	0.0/100.0

[Full Printable Report](#)

## [-] Results From Running Your Tests (85.7%)

Summary: 7 cases (1 failure, 0 errors)

```
Testing module 'book'
...
-----
Ran 3 tests in 0.000s
OK

Testing module 'library'
.F..
-----
FAIL: getBook: Test getting an invalid book from library
AssertionError: Book incorrectly found
-----
Ran 4 tests in 0.001s
FAILED (failures=1)
```

## [+] Interpreting Your Correctness/Testing Score (0/100)

# Using Web-CAT: (11) Interpret Score

Submit Again

 [Permalink](#)

<b>Assignment Name</b>	CSE 101(Just testing): PythonNewDevel Multifile TDD try #3
<b>Submitted</b>	Wilma Flintstone (flinstone2)
<b>Total Score</b>	03/02/09 08:46AM, 13 days, 15 hrs, 8 mins early
	0.0 / 100.0

Full Printable Report

## + Results From Running Your Tests (85.7%)

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### - Interpreting Your Correctness/Testing Score (0/100)

---

This assignment requires that all student tests pass before any other results are computed.

Because some of your tests failed, only the results of your testing are shown and your score will be zero until your code passes all your tests.

**Results from running your tests:** 85.7%

**No other tests attempted** 0%

score = 85.7% \* 0% \* 100.0 points possible = 0

Full-precision (unrounded) percentages are used to calculate your score, not the rounded numbers shown above.

# Oops! Your code was not quite perfect

- There are a number of possible problems
  - Your code does not pass your own tests (optional marking)
  - Your tests do not test all of your code (optional marking)
  - Your code does not pass the instructor's tests
- The assignment can also be set up to
  - Check your code style
  - Require that your code passes your tests before any other marking is done
- If you did your own testing before submitting and examine your code, a number of these problems can be avoided

# Fix, Test, and Resubmit

- Repeat until perfect

- Examine test results

- Look at your code

- Find the errors

- Fix them

- Test your code

- Resubmit

```
def __init__(self, tests=()):  
    self._tests = []  
    self.addTests(tests)
```

```
def __repr__(self):  
    return "%s(%s)" % (self.__class__, self._tests)
```

```
def countTestCases(self):  
    cases = 0  
    for test in self._tests:  
        cases = cases + test.countTestCases()
```

```
def addTest(self, test):  
    self._tests.append(test)
```

```
def addTests(self, tests):  
    for test in tests:  
        self.addTest(test)
```

# Iteration Does Make Perfect

## Your Assignment Submission Results

[Submit Again](#)

 [Permalink](#)

<b>Assignment Name</b>	CSE 101(Just testing): PythonNewDevel Multifile TDD try #4 Wilma Flintstone (flinstone2)
<b>Submitted</b>	03/02/09 09:02AM, 13 days, 14 hrs, 52 mins early
<b>Total Score</b>	100.0/100.0

Score Summary		
Correctness/Testing:	100.0/100.0	<div><div></div></div>
Final score:	100.0/100.0	<div><div></div></div>

Position in class: [Show Graphs](#)

[Full Printable Report](#)

[+ Results From Running Your Tests \(100%\)](#)

[+ Code Coverage from Your Tests \(100.0%\)](#)

[+ Results From Running Your Instructor's Tests \(100%\)](#)

[+ Interpreting Your Correctness/Testing Score \(100/100\)](#)



# References

- Web-CAT Wiki  
<http://web-cat.cs.vt.edu/WCWiki>
- University of Mauritius Web-CAT System  
<http://seal.uom.ac.mu:8080/Web-CAT>