

Codabench quickstart documentation

	Date	@Nov 30, 2020
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Overview

In this article, I'm going to show you how to use the Codabench platform and create benchmark in two ways: Editor and Bundle.



Before proceeding to our tutorial, make sure you have registered for an account on the Codabench website. If not, please click on the link below to register!

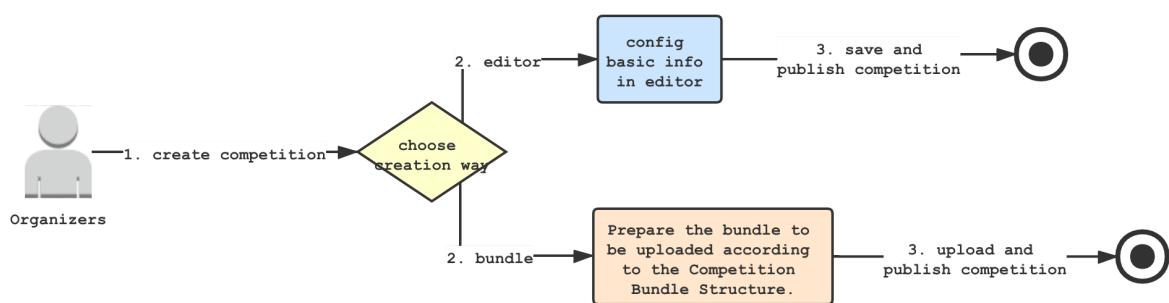
Codalab Competitions

CodaLab Competitions is a powerful open source framework for running competitions that involve result or code submission. You can either participate in an existing competition or host a new competition. Most competitions hosted on Codalab are



<https://www.codabench.org/>

The image below is an overview of the benchmark creation process

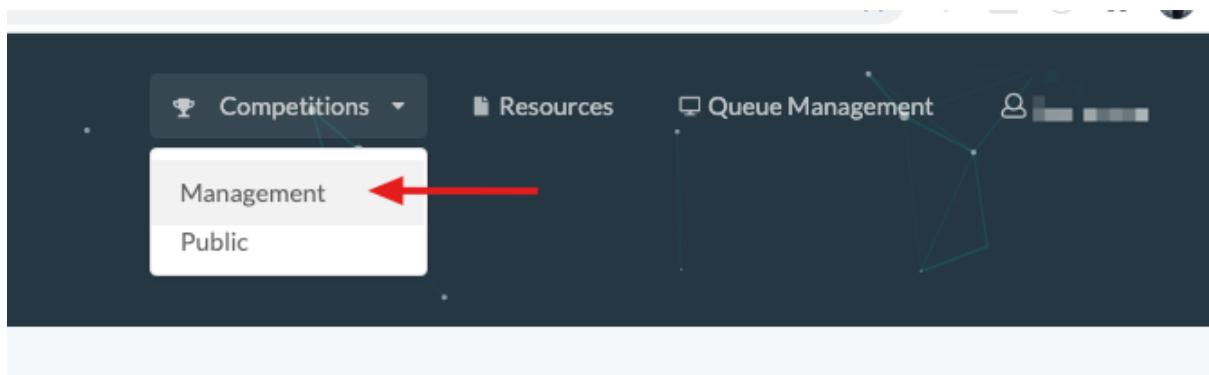


Create Benchmark by Editor

In this chapter, I'll take you step by step through the Editor's approach to creating benchmark, including algorithm type and dataset type

Create algorithm type benchmark

Step 1: Click on Management in the top right corner of Codabench's home page under Competitions.



When you click on it, you will see the screen as shown in the screenshot below.

The screenshot shows the 'Competition Management' page. At the top, there is a title 'Competition Management' and two green buttons: 'Create' and 'Upload'. Below the title, there are two tabs: 'Competitions I'm Running' (which is selected) and 'Competitions I'm In'. There is also a question mark icon for help. The main area is a table listing ten competitions:

Name	Type	Uploaded...	Publish	Edit	Delete
Classify Wheat Seeds - Single phase with multiple task	competition	5 months ago			
Classify Wheat Seeds - Multiple phase with multiple task	competition	5 months ago			
Classify Wheat Seeds	competition	5 months ago			
Health Data Challenge	competition	5 months ago			
Health Data Challenge	competition	5 months ago			
AutoWSL Challenge :: Feedback Phase Without Editing Scoring Directory	competition	5 months ago			
AutoWSL Challenge :: Feedback Phase	competition	5 months ago			
AutoWSL Challenge Single Phase Single Task	competition	5 months ago			
AutoWSL Challenge Single Phase with Multiple Task	competition	4 months ago			
AutoWSL Challenge Multiple Phases with Multiple Tasks	competition	4 months ago			

Step 2: Click on the Create button in the top right corner of Competition Management.

The screenshot shows the 'Competition Management' page. At the top right, there are two green buttons: 'Create' (highlighted with a red box and an arrow) and 'Upload'. Below them is a table with one row. The first column contains the text 'click this!!!'. A red arrow points from the text 'click this!!!' to the 'Create' button. The table has columns for Name, Type, Uploaded..., Publish, Edit, and Delete. The single row in the table shows 'Classify Wheat Seeds - Single phase with multiple task' in the Name column, 'competition' in the Type column, '5 months ago' in the Uploaded... column, and three icons in the Publish, Edit, and Delete columns.

Step 3: Complete the Details tab content.

The screenshot shows the 'Details' tab of the competition creation form. It includes fields for Title (containing 'Classify Wheat Seeds'), Logo (containing 'wheat.jpg'), Description (containing 'Classify Wheat Seeds'), Fact Sheet (with buttons for Boolean+, Text+, and Selection+), Queue (containing 'Queue'), Competition Docker Image (containing 'codalab/codalab-legacy:py3'), and Competition Type (set to 'Competition'). Red arrows point to each of these fields with descriptive text. At the bottom, there are buttons for Publish, Save (highlighted with a red box and an arrow), Discard Changes, and Back To Competition.

Step 4: Complete the Participant Tab.

Details **Participation** Pages Phases Leaderboard Administrators

Terms *

B I H | “ ” ≡ ≡ | % 📸 | ⚔ | ⚔ | ?

Terms and Conditions

We only have two rules

Write competition/benchmark related rules here.

Rule number one
Don't be a dick

Rule number two
See rule number one

A check mark indicates that the contestant will be automatically approved and added to the competition/benchmark when he or she agrees to the terms.

lines: 10 words: 23 9:0

Auto approve registration requests ? Allow robot submissions ?

Publish **Save** Discard Changes Back To Competition ?

Step 5: Complete the Pages Tab.

Details Participation **Pages** Phases Leaderboard Administrators

Pages Tab is designed to allow you to further introduce the competition.
For example, how to participate in the current competition
(how to write a submission that meets the requirements).

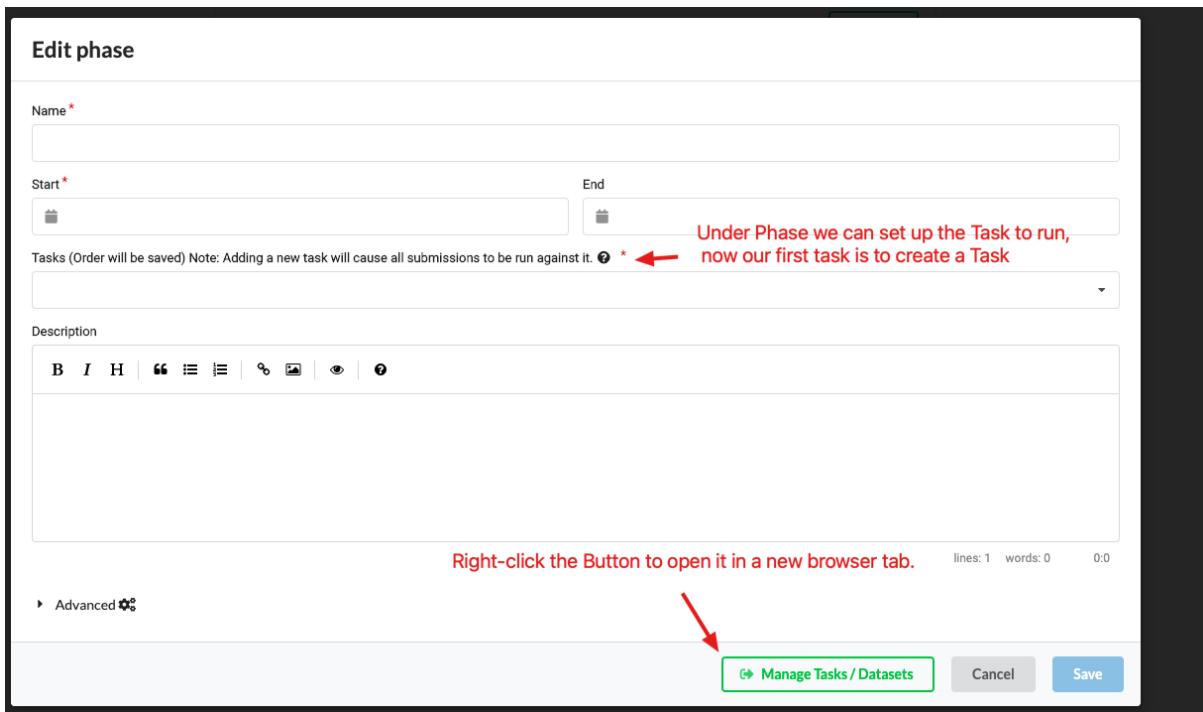
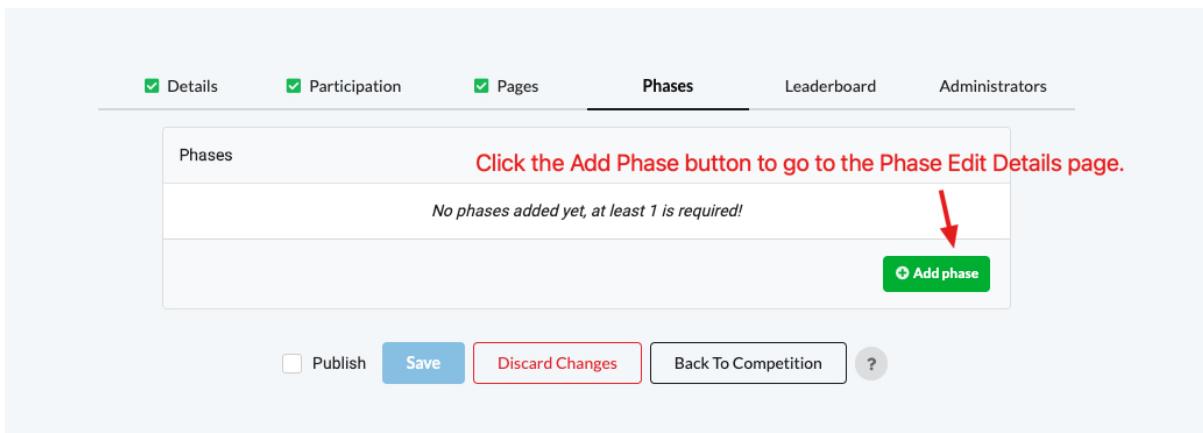
Pages

How to participate

Publish **Save** Discard Changes Back To Competition ?

+ Add page

Step 6: Complete the Phases Tab.



When you click on the Manage Tasks/Datasets button, you will see the screenshot shown below

Click the Add Dataset button in the diagram to upload the resource files needed to create the competition.

Name	Type	Uploaded...	In Use	Public	Delete?
liuzhenwu - submission	submission	23 days ago			<input type="button" value="x"/>
liuzhenwu - submission	submission	24 days ago			<input type="button" value="x"/>
liuzhenwu - submission	submission	25 days ago			<input type="button" value="x"/>
liuzhenwu - submission	submission	25 days ago			<input type="button" value="x"/>
liuzhenwu - submission	submission	27 days ago			<input type="button" value="x"/>
iguyon - submission	submission	37 days ago	<input checked="" type="checkbox"/>		<input type="button" value="x"/>
liuzhenwu - submission	submission	37 days ago			<input type="button" value="x"/>
liuzhenwu - submission	submission	37 days ago			<input type="button" value="x"/>
liuzhenwu - submission	submission	37 days ago			<input type="button" value="x"/>
liuzhenwu - submission	submission	37 days ago			<input type="button" value="x"/>

Creating a phase will require a bundle of the following types (.zip format), I'll give you more details on how to write these bundle later.

Now you just need to have this concept in your mind

Form

Wheat_Input_Data
Wheat_Input_Data
Input Data --- Ingestion Program ← Input Data ← Public Data ← Reference Data ← Scoring Program ← Starting Kit Submission

Here are the screenshots of the 5 types of bundles after they were uploaded

Name	Type	Uploaded...	In Use	Public	Delete?
Wheat_Scoring_Program	scoring_program	3 seconds ago			<input checked="" type="checkbox"/>
Wheat_Reference_Data	reference_data	42 seconds ago			<input checked="" type="checkbox"/>
Wheat_Ingestion_Program	ingestion_program	87 seconds ago			<input checked="" type="checkbox"/>
Wheat_Input_Data	input_data	2 minutes ago			<input checked="" type="checkbox"/>
Wheat_Public_Data	public_data	8 minutes ago			<input checked="" type="checkbox"/>

Name	Uploaded...	Public	Delete?
Wheat Seed Fourth Task	16 days ago		<input checked="" type="checkbox"/>
Wheat Seed Third Task	16 days ago		<input checked="" type="checkbox"/>
Wheat Seed Second Task	16 days ago		<input checked="" type="checkbox"/>
Wheat Seed First Task	16 days ago		<input checked="" type="checkbox"/>
MT5 m_WIC	16 days ago		<input checked="" type="checkbox"/>
MT2 r_WNM	16 days ago		<input checked="" type="checkbox"/>
MT1 r_WIC	16 days ago		<input checked="" type="checkbox"/>
Wheat Seed Fourth Task	17 days ago		<input checked="" type="checkbox"/>
Wheat Seed Third Task	17 days ago		<input checked="" type="checkbox"/>
Wheat Seed Second Task	17 days ago		<input checked="" type="checkbox"/>

Create Task

Details	Datasets
<p>Name *</p> <input type="text" value="Wheat_First_Task_Demo"/>	
<p>Description *</p> <input type="text" value="Wheat_First_Task_Demo"/>	
<input type="button" value="Create"/> <input type="button" value="Cancel"/>	

Edit phase

Name * ← write down phase name

Start * ← Set the phase enable time here.

End

Tasks (Order will be saved) Note: Adding a new task will cause all submissions to be run against it. ? *

← Here you can search for the Task you just created by name.

Description ← write down description for phase here

Here you can set a timeout time for a submission by a user.
If the time limit is exceeded and the submission has not finished running,
it will be considered a failure.
The default value is 600 seconds, which is ten minutes. The unit here is seconds.

Execution Time Limit ? Max Submissions Per Day ? Max Submissions Per Person ? same here

Hide Submission Output

Here you can set the maximum number of Submission per day
for a user under the current Phase.

Manage Tasks / Datasets Cancel Save

Step 7: Complete the Leaderboard Tab .

Details Participation Pages Phases Leaderboard Administrators

Leaderboards

No leaderboards added yet, at least 1 is required!

click this + Add leaderboard

Publish Discard Changes Back To Competition ?

Leaderboard form

Set the name of the LeaderBoard.

Title *	Results	Key ⓘ *	main
<input type="checkbox"/> Leaderboard is Hidden			
Submission Rule			
Add			
	New Column	New Column	
Primary Column	<input checked="" type="radio"/>	<input type="radio"/>	
Computation	None	None	
Sorting ⓘ	Descending	Descending	
Column Key *	accuracy	duration	
Hidden	<input type="checkbox"/>	<input type="checkbox"/>	
	< >	< >	

The setting of the key is related to the result of the scoring program and will be described in detail later.

[+ Add column](#) [Cancel](#) [Save](#)

Step 8: Save and Publish Benchmark

Details Participation Pages Phases Leaderboard [Administrators](#)

Administrators
Creator
+ Add administrator

① click this 

Publish [Save](#) [Discard Changes](#) [Back To Competition](#) [?](#)

② then click this 

CLASSIFY WHEAT SEEDS

Organized by: liuzhenwu

CURRENT PHASE ENDS: January 21, 2021, 8:00 AM GMT+8

CURRENT SERVER TIME: November 30, 2020, 10:12 AM GMT+8

Secret url: https://www.codabench.org/competitions/185/?secret_key=80a47103-7a05-4a1b-a771-2a4b7c0cbc70

Dec 2020 Jan 2021

Get Started Phases My Submissions Results ?

How to participate

Data has been normalized

Seed:

```

class Model:
    def fit(self, X_train, y_train):
        """
        This should handle the logic of training your model
        :param X_train: 2 dimensional np.array of training data
        :param y_train: 1 dimensional np.array of the same length as X_train. Contains classifications of
        """
        pass

    def predict(self, X_test):
        """
        This should handle making predictions with a trained model
        :param X_test: 2 dimensional np.array of testing data
        :return: 1 dimensional np.array of the same length as X_test containing predictions to each point
        """
        pass

```

Reference link

Here's a link to a wiki on how to create a Benchmark via Editor

[codalab/competitions-v2](https://github.com/codalab/competitions-v2/wiki/Competition-Creation-Form)

Competitions can now be created through a wizard/form. This page will cover each different tab of the competition form correlating to a

⌚ <https://github.com/codalab/competitions-v2/wiki/Competition-Creation-Form>

Create dataset type benchmark

Create Benchmark by Bundle

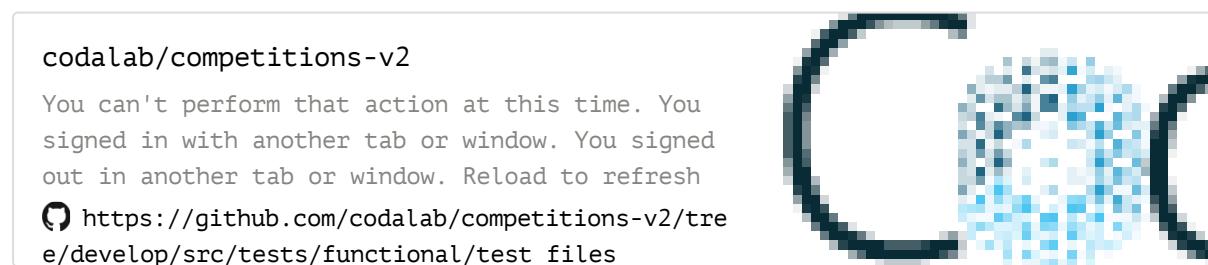
Creating benchmark through bundles is a much more efficient way than editors.

I will show you 2 different levels of difficulty in the bundle to create the benchmark.

Create algorithm type benchmark

Simple Version Example: CLASSIFY WHEAT SEEDS

Step 1: Download bundle via Github link

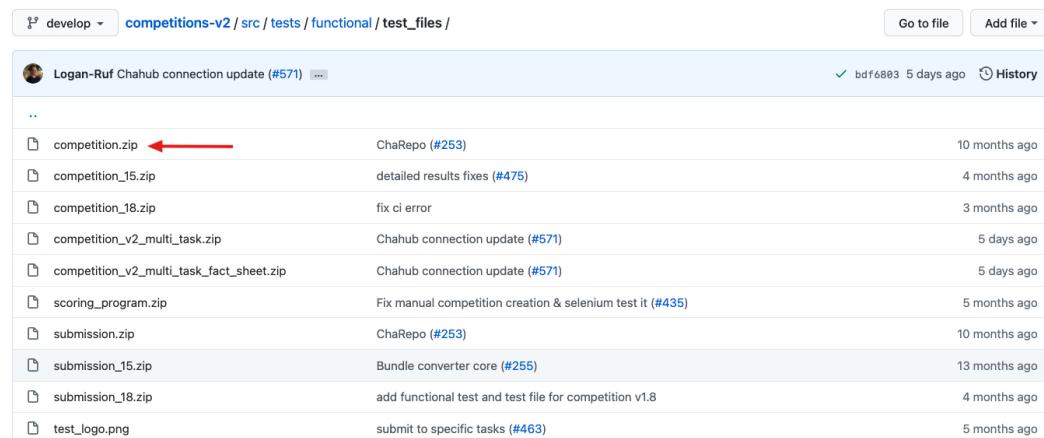


codalab/competitions-v2

You can't perform that action at this time. You signed in with another tab or window. You signed out in another tab or window. Reload to refresh

🔗 https://github.com/codalab/competitions-v2/tree/develop/src/tests/functional/test_files

Click on the link above to download the bundle in the screenshot.



develop → competitions-v2 / src / tests / functional / test_files /

Logan-Ruf Chahub connection update (#571) ... ✓ bdf6803 5 days ago ⏲ History

...

File	Commit	Last Commit
competition.zip	ChaRepo (#253)	10 months ago
competition_15.zip	detailed results fixes (#475)	4 months ago
competition_18.zip	fix ci error	3 months ago
competition_v2_multi_task.zip	Chahub connection update (#571)	5 days ago
competition_v2_multi_task_fact_sheet.zip	Chahub connection update (#571)	5 days ago
scoring_program.zip	Fix manual competition creation & selenium test it (#435)	5 months ago
submission.zip	ChaRepo (#253)	10 months ago
submission_15.zip	Bundle converter core (#255)	13 months ago
submission_18.zip	add functional test and test file for competition v1.8	4 months ago
test_logo.png	submit to specific tasks (#463)	5 months ago

Step 2: Go to the benchmark upload page



Search Competitions

Codabench Accelerating reproducible computational research.

Competitions Resources Queue Management

Management Public

The screenshot shows the Codabench Competition Management interface. At the top, there are two buttons: 'Create' and 'Upload'. The 'Upload' button is highlighted with a red arrow. Below the buttons is a navigation bar with tabs: 'Competitions I'm Running' (which is selected) and 'Competitions I'm In'. A table lists a single competition entry: 'Classify Wheat Seeds - Single phase with multiple task' (competition type), uploaded 5 months ago, with options to 'Publish', 'Edit', and 'Delete'.

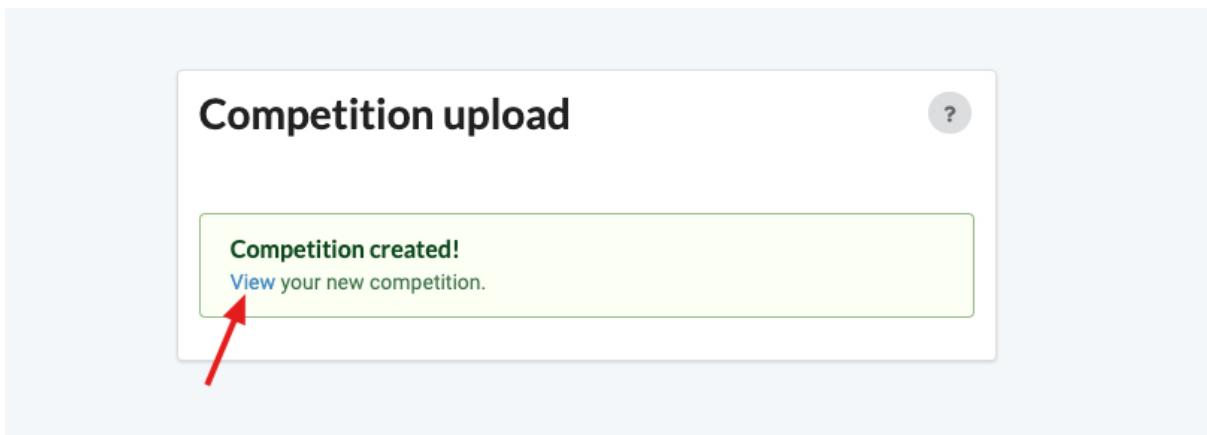
The screenshot shows the 'Competition upload' dialog box. It contains a large input field with a placeholder icon and a red arrow pointing to the 'Upload' button. Below the input field, a red text message reads: 'Click the Upload button to upload the bundle you just downloaded.'

Step 3: Upload bundle

After the bundle has been uploaded, you will see the screenshot shown below.

The screenshot shows the 'Competition upload' dialog box again. This time, it displays a green success message box containing the text 'Competition created!' and a blue link 'View your new competition.'

Step 4: View your new benchmark



A screenshot of the "CLASSIFY WHEAT SEEDS" competition page. At the top, there is a circular image of wheat seeds. Below it, the competition title "CLASSIFY WHEAT SEEDS" is displayed. To the right, there are two buttons: "1 PARTICIPANTS" (red) and "0 SUBMISSIONS" (green). Below the title, it says "ORGANIZED BY: Liuzhenwu", "CURRENT PHASE ENDS: Never", and "CURRENT SERVER TIME: November 30, 2020, 10:41 AM GMT+8". It also includes a "Secret url: https://www.codabench.org/competitions/187/?secret_key=f2df2481-bbcb-4539-b639-475cdec3d3d8" link. A timeline bar shows the competition period from Sep 2019 to Dec 2019. Below the timeline, there are tabs for "Get Started", "Phases", "My Submissions", and "Results". The "Get Started" tab is selected. Under the "Participation" section, there is a "How to participate" heading with the subtext "Data has been normalized". It includes a "Seed:" section with sample Python code:

```
class Model:  
    def fit(self, X_train, y_train):  
        """  
        This should handle the logic of training your model  
        :param X_train: 7 dimensional np.array of training data  
        :param y_train: 1 dimensional np.array of the same length as X_train. Contains classifications of  
        """  
        pass  
  
    def predict(self, X_test):  
        """  
        This should handle making predictions with a trained model  
        :param X_test: 7 dimensional np.array of testing data  
        :return: 1 dimensional np.array of the same length as X_test containing predictions to each point  
        """  
        pass
```

Advanced Version Example: AutoWSL

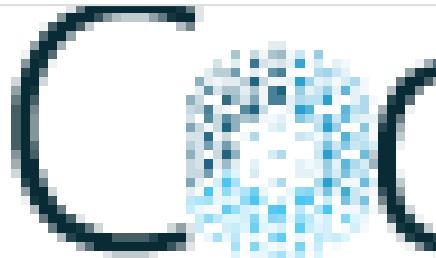
The steps are exactly the same as CLASSIFY WHEAT SEEDS, and the following is the download link of the bundle

codalab/competitions-v2

You can't perform that action at this time. You signed in with another tab or window. You signed out in another tab or window. Reload to refresh

🔗 https://github.com/codalab/competitions-v2/tree/codabench/sample_bundle/src/tests/functional/test_files/AutoWSL_sample/code_submission

The term "advanced" in this context means that the internal structure of the competition bundle will be more complex than `CLASSIFY WHEAT SEEDS`.



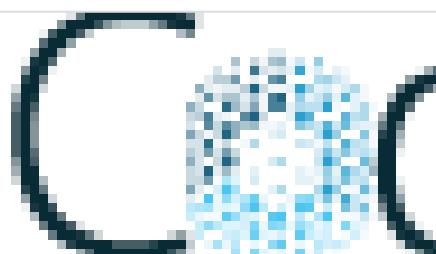
Reference link

Here's a link to a wiki on how to create a benchmark via Bundle upload

codalab/competitions-v2

This page is relatively simple. It's where you submit a completed competition bundle to Codalab, in order for it to be processed into a

🔗 <https://github.com/codalab/competitions-v2/wiki/Competition-Creation:-Bundle>



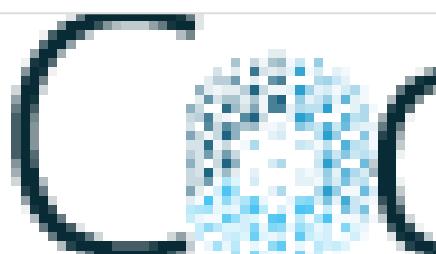
Create dataset type benchmark

Example: AutoWSL

codalab/competitions-v2

You can't perform that action at this time. You signed in with another tab or window. You signed out in another tab or window. Reload to refresh

🔗 https://github.com/codalab/competitions-v2/tree/codabench/sample_bundle/src/tests/functional/test_files/AutoWSL_sample/dataset_submission

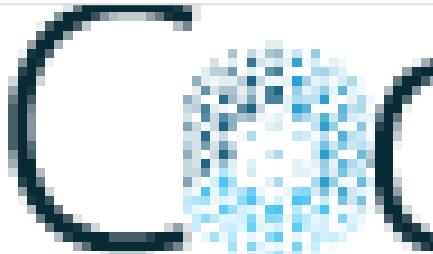


Benchmark Example

example bundles for code & dataset competition could be found here

[codalab/competitions-v2](https://github.com/codalab/competitions-v2)

You can't perform that action at this time. You signed in with another tab or window. You signed out in another tab or window. Reload to refresh
🔗 https://github.com/codalab/competitions-v2/tree/codabench/sample_bundle/src/tests/functional/test_files/AutoWSL_sample



code submission

Codalab Competitions

🔗 <https://www.codabench.org/competitions/194/>

dataset submission

Codalab Competitions

🔗 <https://www.codabench.org/competitions/195/#/pages-tab>

How do I set up submission comments for multiple submissions?

Steps

Step 1: click edit button

AUTOWSL BENCHMARK SINGLE PHASE WITH MULTIPLE TASK

Organized by: Liuzhenwu
Current Phase Ends: December 30, 2020, 8:00 AM GMT+8
Current Server Time: December 4, 2020, 4:51 PM GMT+8
Secret url: https://www.codabench.org/competitions/195/?secret_key=ed0163b0-905c-4e3f-9eb6-c63ec3460a94

July 2020 August 2020 September 2020 October 2020 November 2020 December 2020

Get Started Phases My Submissions Results ?

credits

step 2: enabled multiple submissions on leaderboard

Details Participation Pages Phases Leaderboard Administrators

Leaderboards

Results

Add leaderboard

Publish Save Discard Changes Back To Competition ?

Leaderboard form

Leaderboard Settings

Title * Results Key ? * main

Leaderboard is Hidden

Submission Rule

Add And Delete Multiple

Add

Add And Delete

Add And Delete Multiple **←**

Force Last

Force Latest Multiple

Force Best

Column Key * accuracy duration

Hidden

+ Add column **Cancel** **Save** **←**

The screenshot shows the 'Leaderboard form' configuration page. It includes sections for 'Leaderboard Settings' (Title: 'Results', Key: 'main'), a checkbox for 'Leaderboard is Hidden', and a 'Submission Rule' dropdown set to 'Add And Delete Multiple'. A red arrow points to this dropdown item. Below it are other options: 'Add', 'Add And Delete', 'Force Last', 'Force Latest Multiple', and 'Force Best'. To the right is a table with columns for 'Column Key' (accuracy) and 'duration'. At the bottom are buttons for '+ Add column', 'Cancel', and 'Save', with a red arrow pointing to the 'Save' button.

step 3: set up submission comment

①  Details Participation Pages Phases Leaderboard Administrators

Title * AutoWSL Benchmark Single Phase with Multiple Task

Logo * Uploaded Logo: logo.png *

Description

B I H | 

Create a fully Automated Deep Learning solution for Text Categorization.

② choose Text+ 

Fact Sheet

Boolean + Text + Selection + 

Type: Text
Key name:  SUBMISSION_COMMENT 

Show On Leaderboard: 

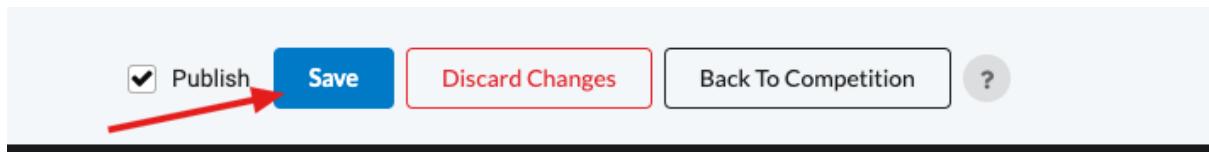
Display Name:  SUBMISSION_COMMENT 

Is Required: 



③ doing like this 

step 4: save all changes



step 5: leave a comment before making submission

Get Started Phases My Submissions Results ?

Single Phase with Multiple Task

Submission upload

Metadata or Fact Sheet ①

SUBMISSION_COMMENT: * write down you comment here
FIFTH_SUBMISSION

Selected Tasks

② click here to choose submission zip file

Search... Q Status

ID #	File name	Status	Actions
1663	AutoWSL_dataset_submission.zip	Finished	✓
1655	AutoWSL_dataset_submission.zip	Finished	✓
1643	AutoWSL_dataset_submission.zip	Finished	✓
1635	AutoWSL_dataset_submission.zip	Finished	✓
1631	AutoWSL_dataset_submission.zip	Finished	✓

③ you could choose whether to put this submission result to leaderboard or not after submission finished

step 6: check out leaderboard

Get Started Phases My Submissions **Results** ?

Single Phase with Multiple Task

Filter Leaderboard by Columns

Task:	#	Username	Results							
			Fact Sheet Answers		Second Task		Third Task		First Task	
	Userame	SUBMISSION_COMMENT	Prediction score	Duration	Prediction score	Duration	Prediction score	Duration		
1	liuzhenwu	THIRD_SUBMISSION	0.9641000543	0.6429336071	0.9641000543	0.8160328865	0.9641000543	1.0644438267		
2	liuzhenwu	SECOND_SUBMISSION	0.9641000543	0.9911692142	0.9641000543	0.5650615692	0.9641000543	0.5307083130		
3	liuzhenwu	FIRST_SUBMISSION	0.9641000543	0.6895229816	0.9641000543	0.5825071335	0.9641000543	0.8608663082		
4	liuzhenwu	FOURTH_SUBMISSION	0.9641000543	0.8419218063	0.9641000543	0.5171837807	0.9641000543	0.6155939102		
5	liuzhenwu	FIFTH_SUBMISSION	0.9641000543	0.7852628231	0.9641000543	0.5111699104	0.9641000543	0.7217628956		

Reference

For the five types of datasets mentioned above (`input_data`, `ingestion_program`, `reference_data`, etc.), the corresponding explanations can be found in the github wiki.

For more features of the Codabench platform, please refer to the wiki.

[codalab/competitions-v2](https://github.com/codalab/competitions-v2)

Contribute to codalab/competitions-v2 development by creating an account on GitHub.

ⓘ <https://github.com/codalab/competitions-v2/wiki>

