AWS Lambda with Pandas and NumPy

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AWS Lambda does not include Pandas/NumPy Python libraries by default. How use Pandas and NumPy with Lambda functions?

Problem statement

There are no default Pandas in AWS Lambda. You can see AWS Lambda execution environment and available libraries here. Let's verify and create AWS Lambda Python 3.6 function with code below:

```
1  import pandas as pd
2
```

```
3  def lambda_handler(event, context):
4      pass
```

lambda_function.py hosted with ❤ by GitHub view raw

Lambda's response:

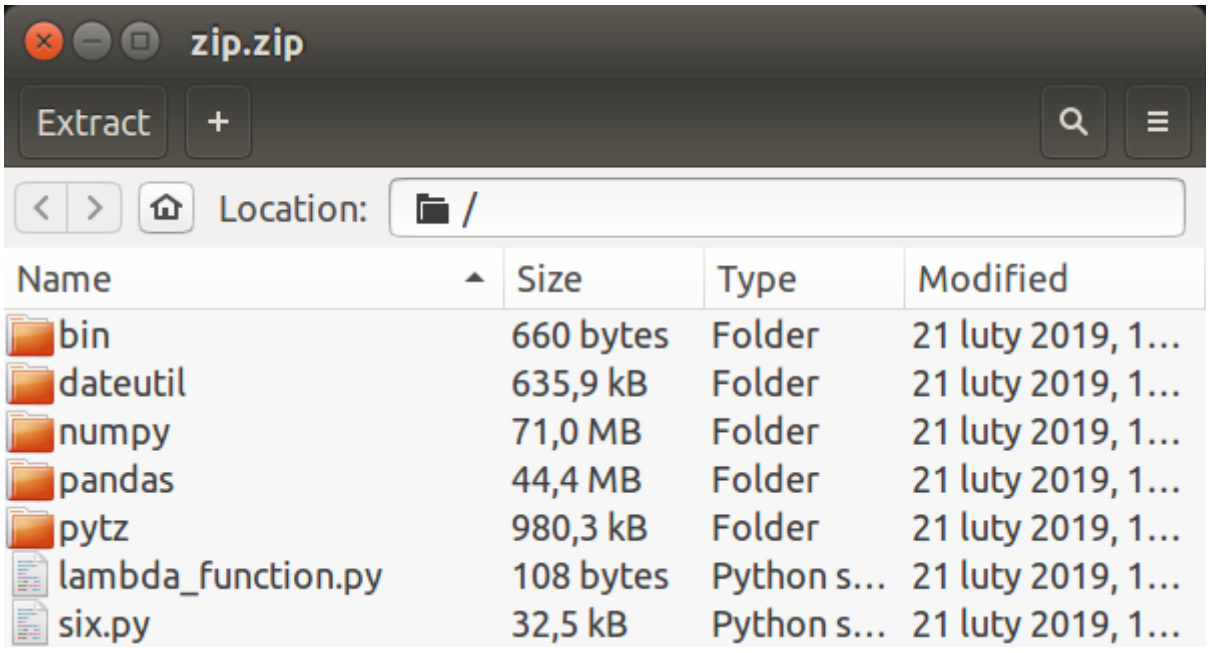
```
Unable to import module 'lambda_function': No module named 'pandas'
```

Create new local directory with `lambda_function.py` file. Install Pandas to local directory with pip:

```
$ pip install -t . pandas
```

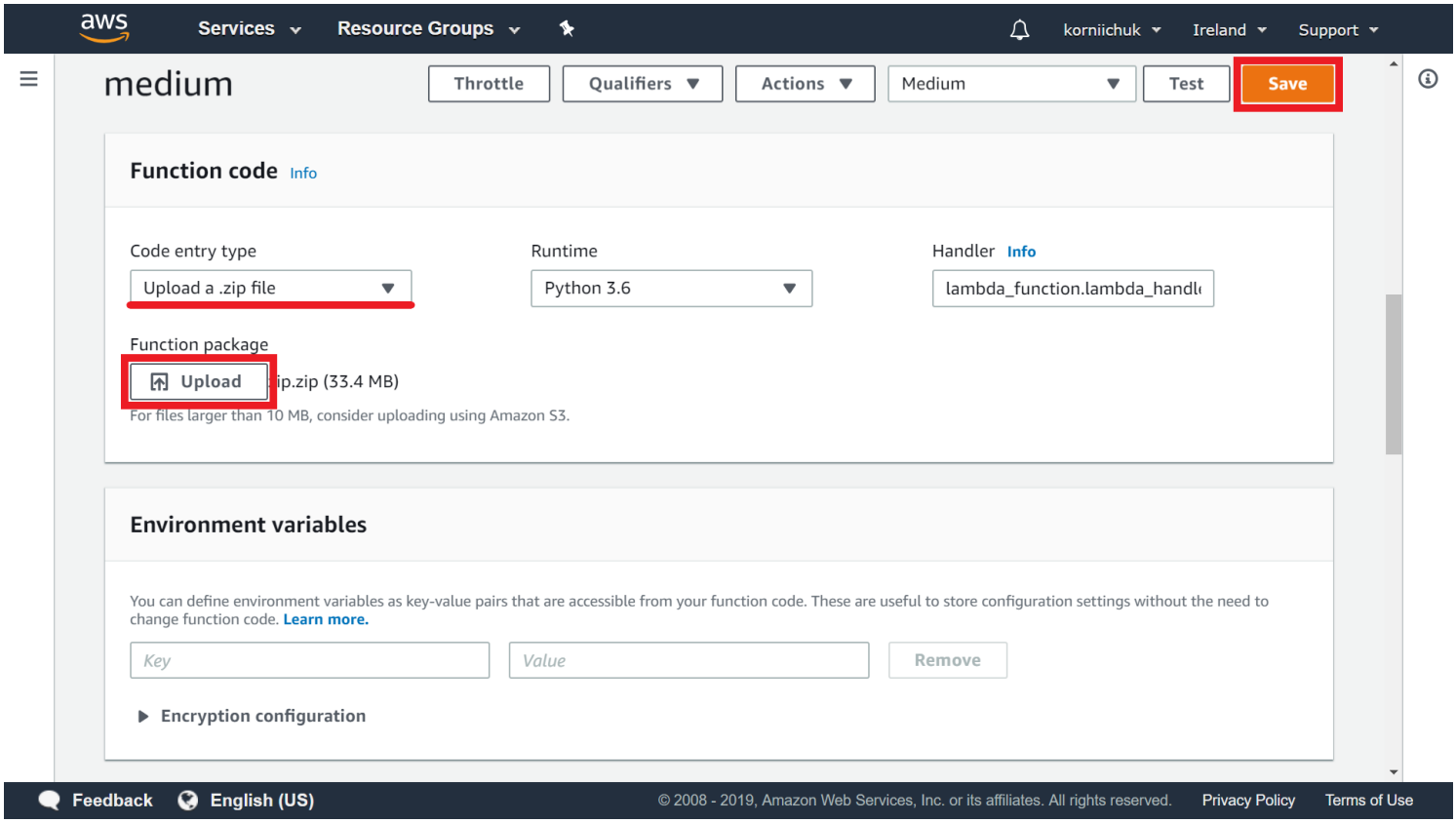
Remove `*.dist-info` and `__pycache__`. Prepare `zip.zip` archive with `lambda_function.py` file and Pandas:

```
$ rm -r *.dist-info __pycache__
$ zip -r zip.zip .
```



zip.zip archive with lambda_function.py file and Pandas

Create new lambda function (e.g. `medium`). Go to `Function code` section and select `Upload a .zip file` from `Code entry type` dropdown. Click `Upload` button. Upload `zip.zip` file. Finally click `Save` button:

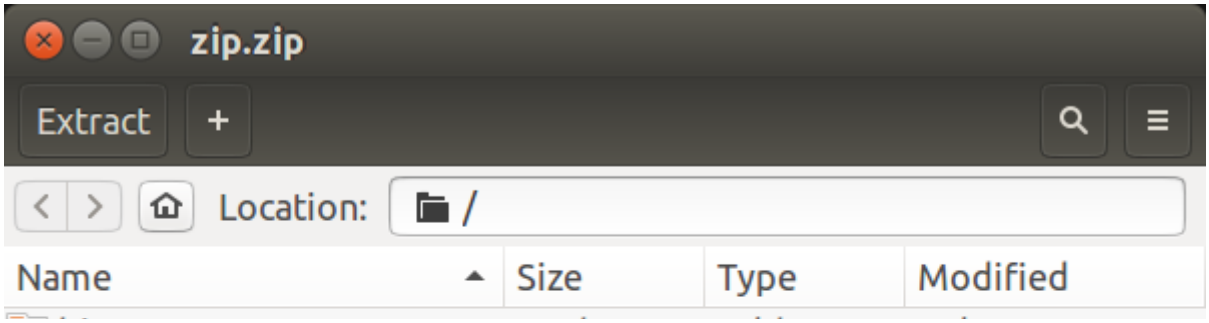


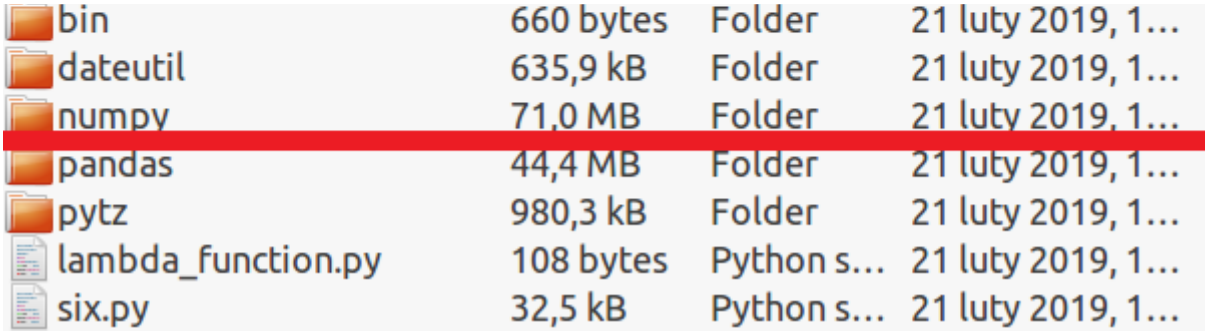
Upload function package

Let's check new Lambda function response:

```
Unable to import module 'lambda_function': Missing required
dependencies ['numpy']
```

What? As you can see below, `zip.zip` archive include NumPy.





zip.zip archive with lambda_function.py file, Pandas, and Numpy

Standard method does not work. AWS Lambda need special Pandas/NumPy. Let's fix it.

Note: Do not forget clean your working environment, first. Remove `pandas`, `numpy`, and `*.dist-info` directories:

```
$ rm -r pandas numpy *.dist-info
```

Solution

AWS Lambda use Amazon Linux operating system. Idea is download Pandas and NumPy compatible with Amazon Linux.

Pandas. Navigate to https://pypi.org/project/pandas/#files. Search for and download newest `*manylinux1_x86_64.whl` package. In my case for Python 3.6 is pandas-0.24.1-cp36-cp36m-manylinux1_x86_64.whl file.

NumPy. Do the same for NumPy. File is numpy-1.16.1-cp36-cp36m-manylinux1_x86_64.whl.

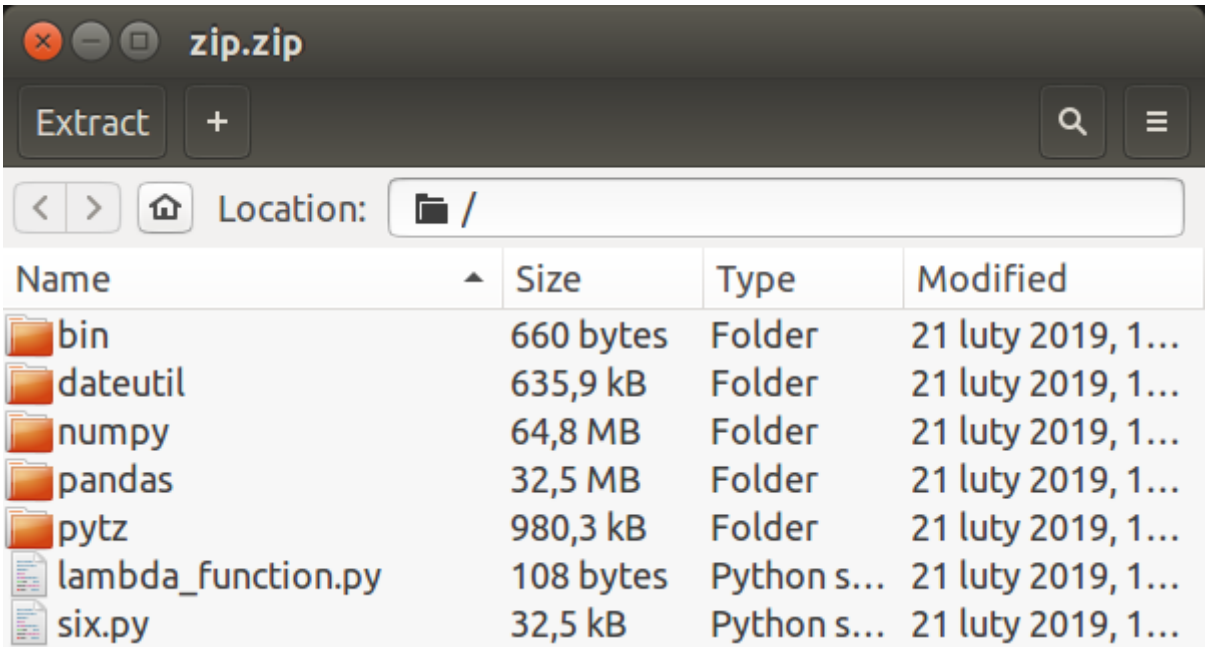
Download whl files to directory with `lambda_function.py`. Unzip whl files.

```
$ unzip numpy-1.16.1-cp36-cp36m-manylinux1_x86_64.whl
$ unzip pandas-0.24.1-cp36-cp36m-manylinux1_x86_64.whl
```

Note: Lambda with Python 3.7 requires pytz lib: `$ pip install -t . pytz`

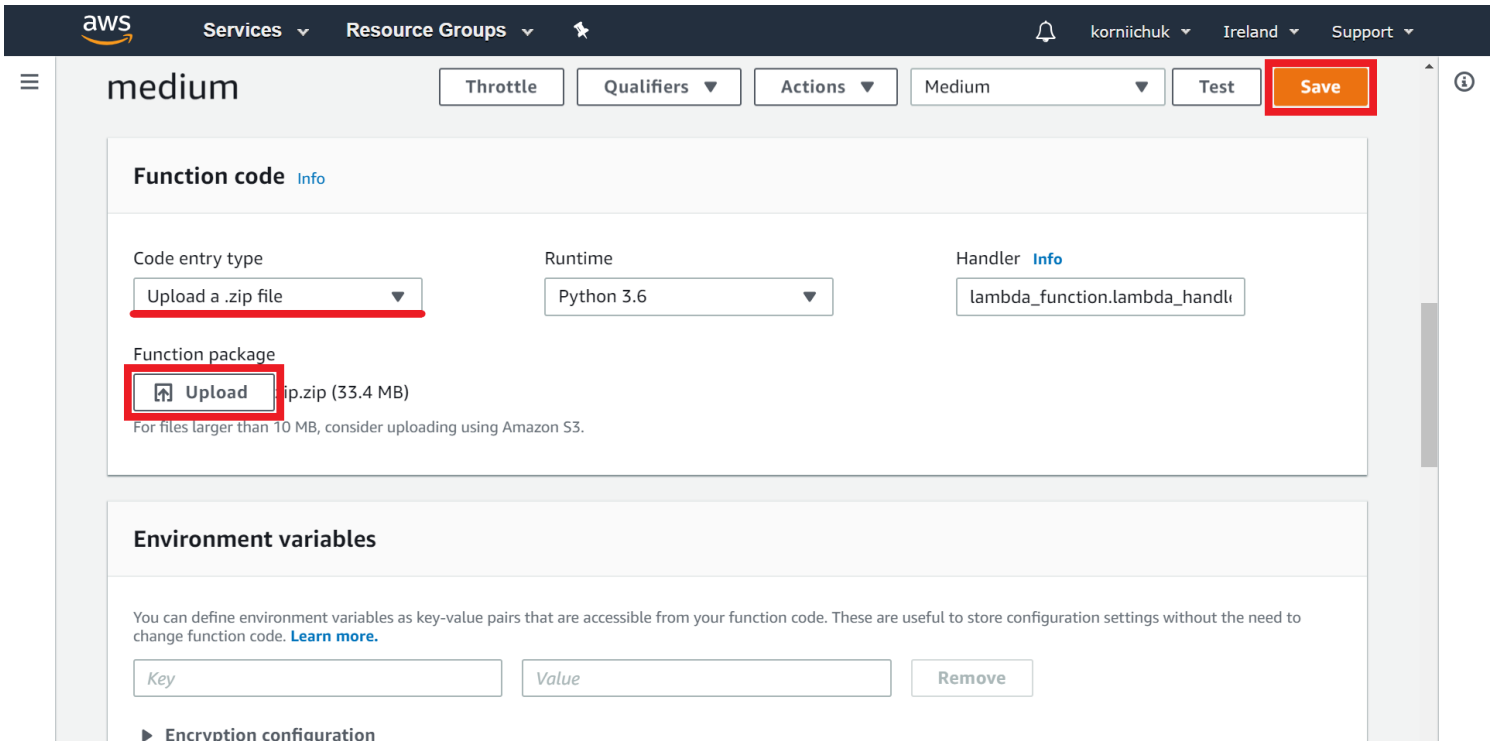
Remove whl files, `*.dist-info`, and `__pycache__`. Prepare new `zip.zip` archive:

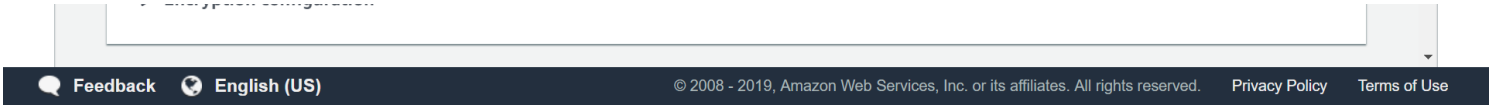
```
$ rm -r *.whl *.dist-info __pycache__
$ zip -r zip.zip .
```



zip.zip archive for Amazon Linux with lambda_function.py file, Pandas, and Numpy

Navigate to lambda function (e.g. `medium`). Go to `Function code` section and select `Upload a .zip file` from `Code entry type` dropdown. Click `Upload` button. Upload `zip.zip` file. Finally click `Save` button:





Upload function package

Let’s check new Lambda function response:

```
Execution result: succeeded
```

Congrats!

AWS Lambda Pandas Python Numpy

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