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# **project-template Documentation**

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**Vighnesh Birodkar**

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This project is a implementation to anyone who wishes to use metaheuristics in feature selection. It comes with a *template* module which contains a single estimator with unit tests.



# CHAPTER 1

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## API Documentation

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- HarmonicSearch





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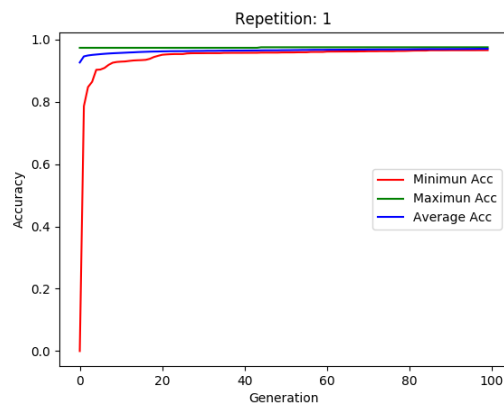
### General examples

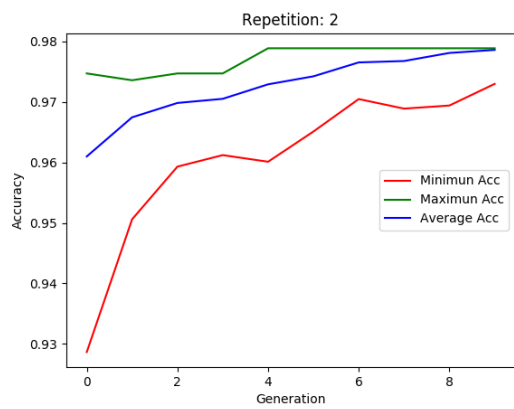
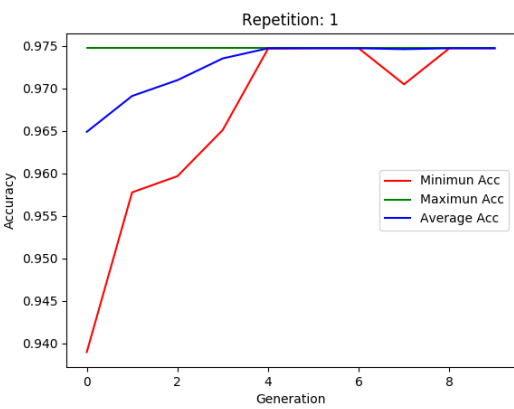
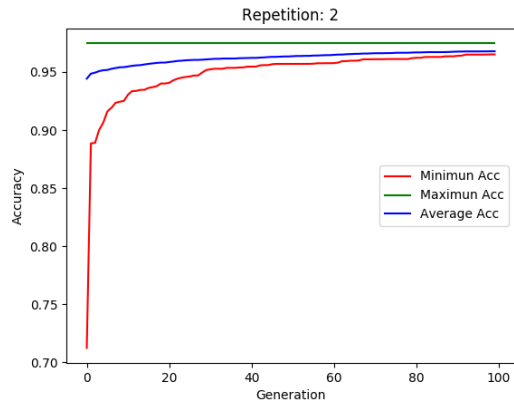
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Introductory examples.

### Plotting MetaHeuristics - Basic Use

An example plot of :class:`~feature\_selection.HarmonicSearch`





Out:

```
Number of Features Selected:
  HS: 0.5 %      GA: 0.533333333333 %
Accuracy of the classifier:
  HS: 0.974700609783  GA: 0.978857729005
```

```

from feature_selection import HarmonicSearch, GeneticAlgorithm
from sklearn.datasets import load_breast_cancer
from sklearn.svm import SVC

dataset = load_breast_cancer()
X, y = dataset['data'], dataset['target_names'].take(dataset['target'])

# Classifier to be used in the metaheuristic
clf = SVC()

hs = HarmonicSearch(classifier=clf, random_state=0, make_logbook=True,
                    repeat=2)

ga = GeneticAlgorithm(classifier=clf, random_state=1, make_logbook=True,
                     repeat=2)

# Fit the classifier
hs.fit(X, y, normalize=True)
ga.fit(X, y, normalize=True)

print("Number of Features Selected: \n \t HS: ", sum(hs.support_)/X.shape[1],
      "% \t GA: ", sum(ga.support_)/X.shape[1], "%")
print("Accuracy of the classifier: \n \t HS: ", hs.fitness_[0], "\t GA: ",
      ga.fitness_[0])

# Transformed dataset
X_hs = hs.transform(X)
X_ga = ga.transform(X)

# Plot the results of each test
hs.plot_results()
ga.plot_results()

```

**Total running time of the script:** ( 0 minutes 24.288 seconds)

Download Python source code: `plot.py`

Download Jupyter notebook: `plot.ipynb`

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Download all examples in Python source code: `auto_examples_python.zip`

Download all examples in Jupyter notebooks: `auto_examples_jupyter.zip`

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See the [README](#) for more information.



## CHAPTER 3

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### Indices and tables

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- `genindex`
- `modindex`
- `search`