ANM Project

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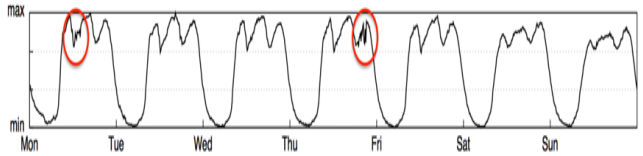
Project -- Anomaly Detection Competition

Dataset: 27 labeled KPIs from five large Internet companies

- training set: 50%, with label used to train your algorithm
- testing set: 50%, without label used to test your algorithm



KPI ID	timestamp	value	label
A	1411315200	90.75	0
A	1411315260	96.78	1
…	…	…	

Training set

KPI ID	timestamp	value
A	1411423000	83.2
A	1411423060	91.4
…	…	…

Testing set

KPI ID	timestamp	predict
A	1411423000	0
A	1411423060	1
…	…	

Submitted files

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Requirements:

- Design a generic anomaly detection algorithm and submit your result on the website. The website will give a rank list of F-score like Kaggle.
- Submit runnable codes and a report about all details of your algorithm, including data preprocessing (normalization? fill missing? etc.), algorithm implementation, parameter setting...
- Give a presentation.

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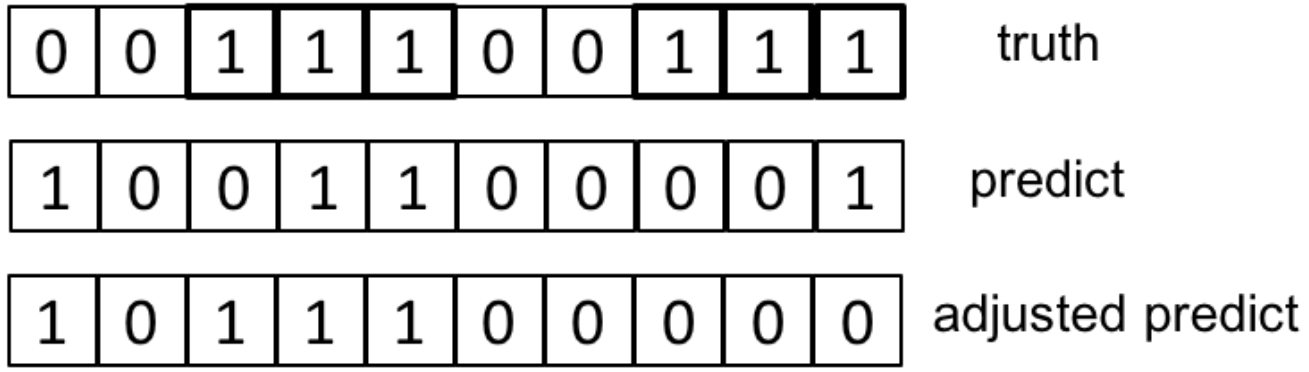
Deadlines:

- Leaderboard: Dec 27 23:59 (40%)
- Report: Jan 2 25:59 (10%)
- Presentation time: Jan 2 (last class,10%)

Evaluation Metric

- For an anomaly segment with start point i, if any points between i to i+T in the ground truth were detected, we say this segment is detected correctly, and all points in this segment are treated as true positives. Otherwise, all points in this segment are regarded as false negatives.
- T is the delay threshold. T=7 in our project



Example: T=1
Precision = 0.75
Recall = 0.5

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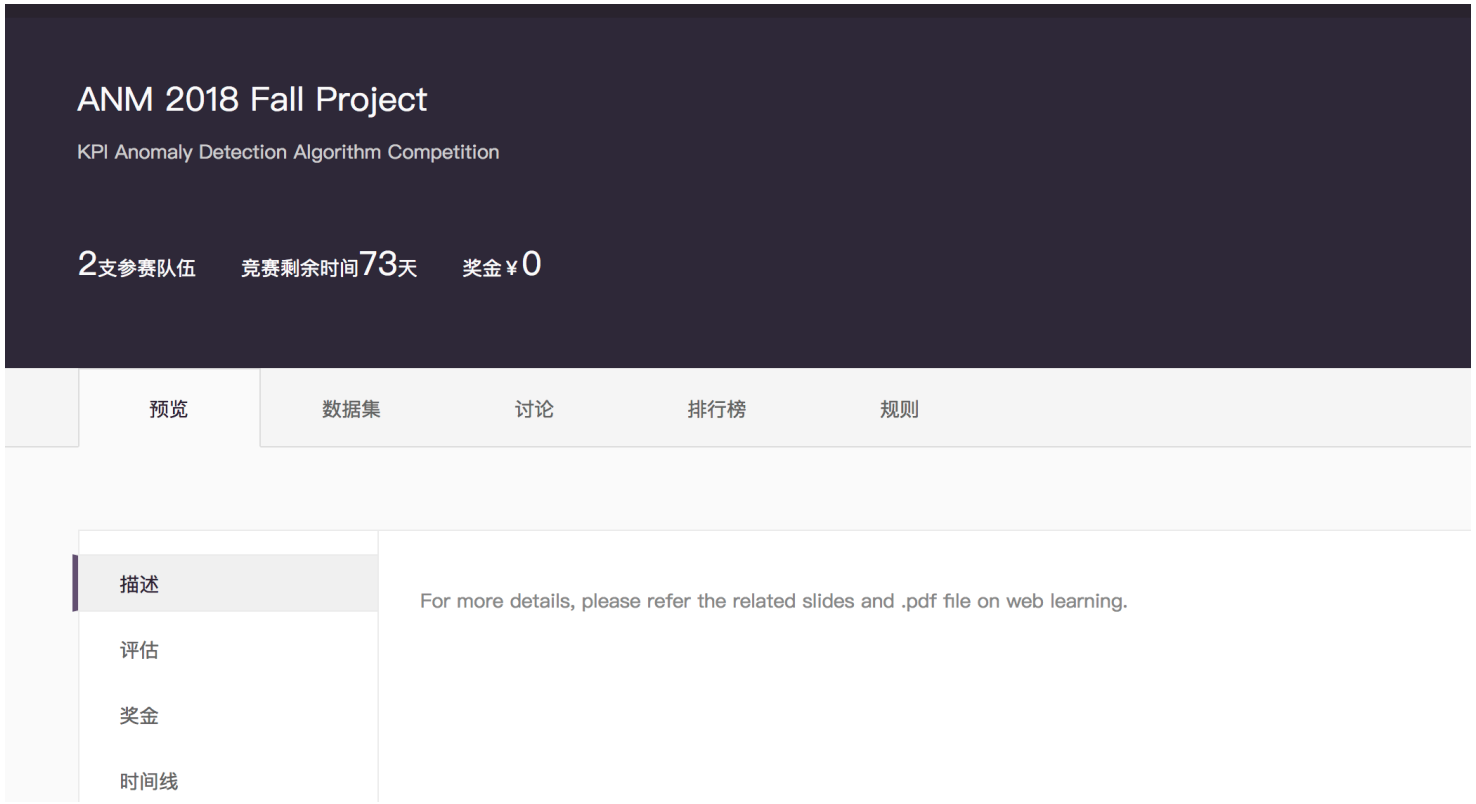
Leaderboard Scoring rule:

- The first place with best F-score will get full points (40 points).
- Other teams: score = $\frac{your\ F-score}{best\ F-score} \times 40$

  For example, best F-score = 0.8, the F-score of your team is 0.6, you will get

  score = $\frac{0.6}{0.8} \times 40$=30 points

KPI Anomaly Detection Competition Website



http://iops.ai/competition_detail/?competition_id=7&flag=1

KPI Anomaly Detection Competition Website

- Sign up an account with email
- Real name authentication (by student ID card)
- Download datasets
- Submit your results

http://iops.ai/competition_detail/?competition_id=7&flag=1

Resource

- Free Azure
- About $300 for each group
- Provide your Microsoft account

References

- http://workshop.aiops.org/
- Unsupervised Anomaly Detection via Variational Auto-Encoder for Seasonal KPIs in Web Applications, WWW 2018
- Opprentice: Towards Practical and Automatic Anomaly Detection Through Machine Learning , IMC 2015
- Generic and Scalable Framework for Automated Time-series Anomaly Detection, KDD 2015
- Tsfresh https://github.com/blue-yonder/tsfresh

Q&A
Thank you!