SHAKHMARDAN YESSENOV FOUNDATION

30 ALMA ALMATY MANAGEMENT UNIVERSITY

SUMMER SCHOOL

YESSENOV DATA LAB

June 11 – August 3, 2018
Almaty

In partnership with

Kaspi.kz

YESSENOV DATA LAB

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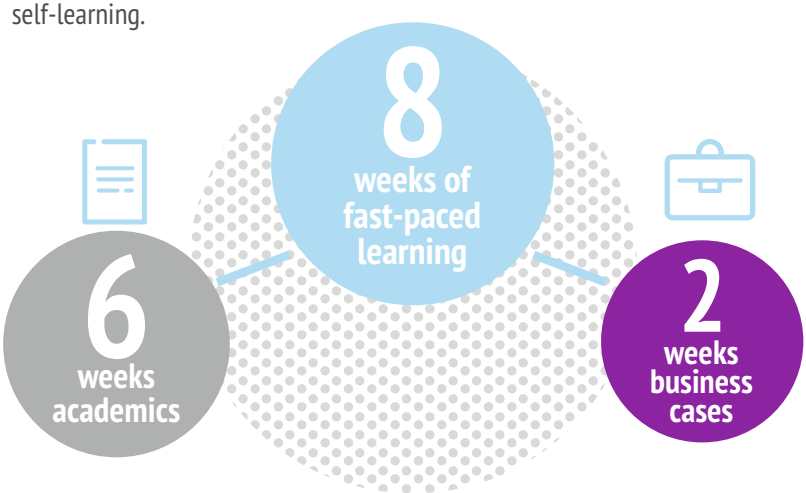
About Yessenov Data Lab

The Yessenov Data Lab is an 8-week long intensive summer school that fast launches into the Data Scientist specialization. Participants solve the challenges businesses face and are equipped with knowledge to continue growing by self-learning.



School's dates: June 11 – August 3, 2018
Schedule: Mon-Fri, 9:00 am-6:00pm
Participants: 20 people

Venue:
Almaty Management University

THE GRADUATES OF THE SUMMER SCHOOL CAN LOOK FOR TO ACQUIRE THE FOLLOWING SKILLS:

1. Programming in Python within data analysis
2. Preprocessing
3. Visualization of data and finding data dependencies
4. Forecasting based on historical data
5. Understanding different algorithms of training
6. Right choice of training model
7. Fundamental understanding of Neural Networks

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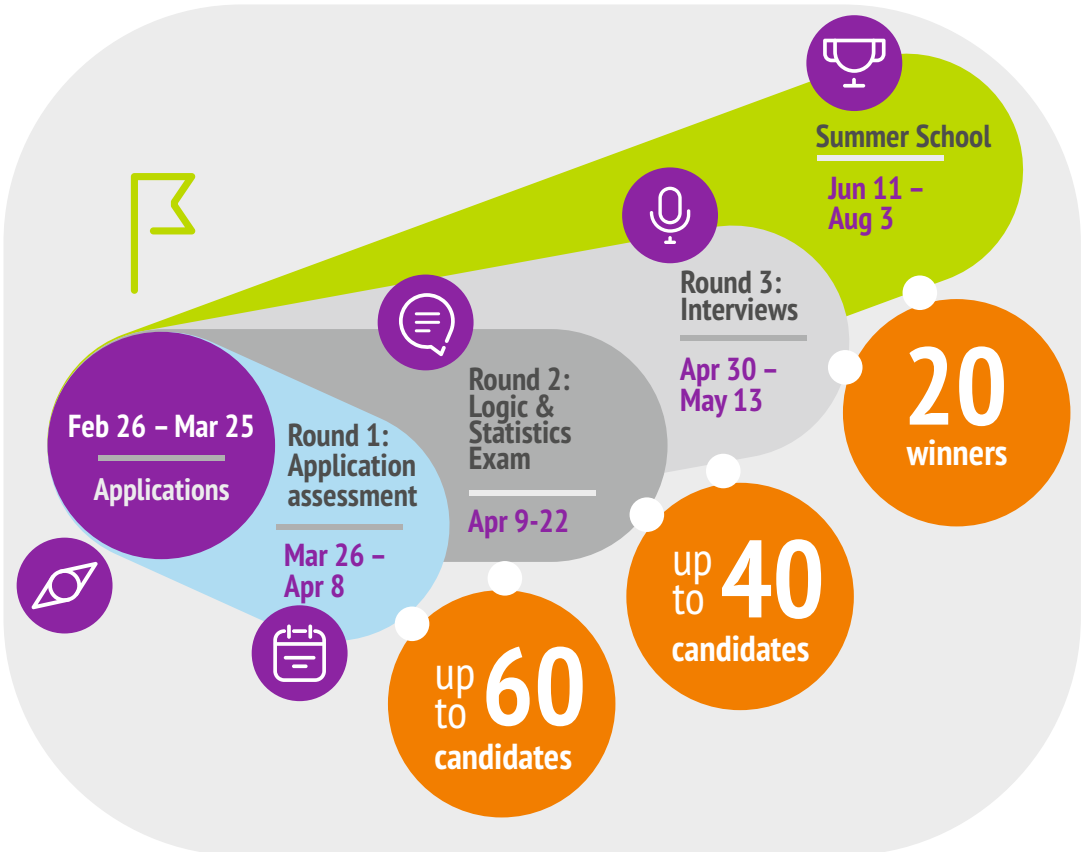
Program stages



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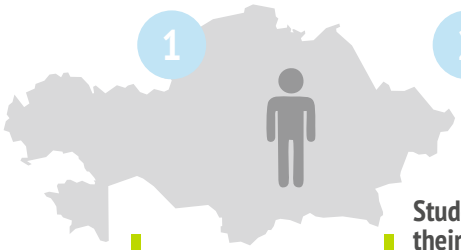
Who can apply for the program?



1. Kazakhstan citizens above 18
2. Students in their last year: undergraduate, graduate and Ph.D. programs
3. Professionals

REQUIREMENTS FOR CANDIDATES:

- Strong analytical skills
- Basic knowledge of statistics and linear algebra
- Determination and result-oriented

THE FOLLOWING ARE A PLUS:

1. Programming skills

2. Certificates of successful completion of programming courses or a bachelor diploma in CS or other tech disciplines (math, physics, and engineering)

3. Upper intermediate English (6.5 IELTS/90 TOEFL ibt) or higher

ETS TOEFL OVERVIEW AND FORMAT

IELTS English for International Opportunity

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Apply to the Program

Visit **yessenovfoundation.org** → Fill out application and prepare additional documents →

→ Send them to **info@yessenovfoundation.org** **before March 25** → Round 1 results **April 9**

ADDITIONAL DOCUMENTS LIST:

- 1. Application form
- 2. Copy of ID
- 3. Copy of diplomas, certificates on completion of courses (programming, statistics, etc.), participation in Olympiads (math, IT or any other tech disciplines)
- 4. Copy of transcript (all completed semesters) and a copy of bachelor degree diploma with transcript (for graduates and specialists)
- 5. Essay on "I want to learn data analysis to..."
- 6. Detailed portfolio demonstrating achievements in IT field (where possible)
- 7. Certificates of English language tests (where possible)

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School's Syllabus

Week 1. Python

June 11-15

Kuanysh Abeshev
AlmaU

Timur Bakibayev
Professor AlmaU

Day 1

09:00 – 10:00	Registration
10:00 – 11:30	What is Data Mining, Big Data? Examples
11:30 – 11:45	Coffee break
12:00 – 13:15	Case study: Titanic on Kaggle
13:15 – 14:30	Lunch
14:30 – 16:00	Python: Introduction. Variables, list, conditions, loops
16:00 – 16:15	Coffee break
16:15 – 18:00	Lab work: Basics of Python

Day 2

10:00 – 11:30	Data structures: list, sets, dictionaries
11:30 – 11:45	Coffee break
12:00 – 13:15	NumPy library: Introduction
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work: data structures and NumPy
16:00 – 18:00	Team building

Day 3

10:00 – 11:30	Pandas and SciPy libraries: Introduction. Data upload
11:30 – 11:45	Coffee break
12:00 – 13:15	Grouping of data. Filters, sorting
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work: CSV, TXT, Quandl.
16:00 – 16:15	Coffee break
16:15 – 18:00	Lab work: CSV, TXT, Quandl.

Day 4

10:00 – 11:30	Object-oriented programming
11:30 – 11:45	Coffee break
12:00 – 13:15	Case study: Coders Strike Back on codingame.com
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work: codingame.com: simple tasks
16:00 – 16:15	Coffee break
16:15 – 18:00	Lab work: codingame.com: Coders Strike Back

Day 5

10:00 – 11:30	Data upload. Data pre-processing
11:30 – 11:45	Coffee break
12:00 – 13:15	Simple visualization (2D Arrays)
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work: Pandas
16:00 – 16:15	Coffee break
16:15 – 18:00	Lab work: MatPlotLib

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School's Syllabus

Week 2. Linear Models for Classification and Regression

June 18-22

Dmitriy Rusanov
Data Scientist,
EPAM Systems

Day 1

10:00 – 11:30	Optimization, gradient decent method
11:30 – 11:45	Coffee break
12:00 – 13:15	Lab work
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work:
16:00 – 16:15	Coffee break
16:15 – 18:00	Lab work

Day 2

10:00 – 11:30	Linear models for classification and regression
11:30 – 11:45	Coffee break
12:00 – 13:15	Lab work
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work
16:00 – 16:15	Coffee break
16:15 – 18:00	Lab work

Day 3

10:00 – 11:30	Overfitting, generalization
11:30 – 11:45	Coffee break
12:00 – 13:15	Lab work
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work
16:00 – 18:00	Team building

Day 4

10:00 – 11:30	Cross-validation
11:30 – 11:45	Coffee break
12:00 – 13:15	Lab work
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work
16:00 – 16:15	Coffee break
16:15 – 18:00	Lab work

Day 5

10:00 – 11:30	Quality metrics
11:30 – 11:45	Coffee break
12:00 – 13:15	Lab work
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work
16:00 – 16:15	Coffee break
16:15 – 18:00	Lab work

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School's Syllabus

Week 3. Working with Features (PCA, Classification)

June 25-29

Michael Lipkovich
Lead big data engineer,
EPAM Systems

Day 1

10:00 – 11:30	Classification, decision tree and k-Nearest Neighbours
11:30 – 11:45	Coffee break
12:00 – 13:15	Lab work
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work
16:00 – 16:15	Coffee break
16:15 – 18:00	Lab work

Day 2

10:00 – 11:30	Decision tree ensembles: bagging, boosting, random forest
11:30 – 11:45	Coffee break
12:00 – 13:15	Lab work
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work
16:00 – 16:15	Coffee break
16:15 – 18:00	Lab work

Day 3

10:00 – 11:30	Unsupervised learning: PCA, clustering
11:30 – 11:45	Coffee break
12:00 – 13:15	Lab work
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work
16:00 – 18:00	Team building

Day 4

10:00 – 11:30	Feature selection
11:30 – 11:45	Coffee break
12:00 – 13:15	Lab work
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work
16:00 – 16:15	Coffee break
16:15 – 18:00	Lab work

Day 5

10:00 – 11:30	Support vector machine (SVM)
11:30 – 11:45	Coffee break
12:00 – 13:15	Lab work
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work
16:00 – 16:15	Coffee break
16:15 – 18:00	Lab work

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School's Syllabus

Week 4. Neural Networks

July 2-6

Marina Gorlova
Analyst,
Yandex Money

Day 1

10:00 – 11:30	Neural networks: Introduction. Perceptron
11:30 – 11:45	Coffee break
12:00 – 13:15	Back-propagation
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work: Neural Network implementation
16:00 – 16:15	Coffee break
16:15 – 18:00	Lab work: Neural Network implementation

Day 2

10:00 – 11:30	Keras library: Introduction
11:30 – 11:45	Coffee break
12:00 – 13:15	Keras library: Introduction. Continued
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work
16:00 – 16:15	Coffee break
16:15 – 18:00	Lab work

Day 3

10:00 – 11:30	Convolutional neural networks (CNN)
11:30 – 11:45	Coffee break
12:00 – 13:15	Lab work: image analysis
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work: image analysis
16:00 – 18:00	Team building

Day 4

10:00 – 11:30	Recurrent neural network (RNN)
11:30 – 11:45	Coffee break
12:00 – 13:15	Lab work: text analysis
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work: text analysis
16:00 – 16:15	Coffee break
16:15 – 18:00	Lab work: text analysis

Day 5

10:00 – 11:30	Problems of overfitting. Data augmentation
11:30 – 11:45	Coffee break
12:00 – 13:15	Lab work
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work
16:00 – 16:15	Coffee break
16:15 – 18:00	Lab work

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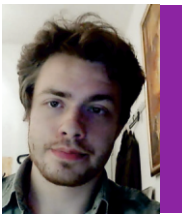
School's Syllabus

Week 5.

Deep Learning in Computer Vision and Reinforcement Learning. Solving Kaggle cases?



Dmitriy Kotovenko
AGT International,
Computer Vision
Reseach Assistant

July 9-13

Day 1

10:00 – 11:30	MNIST, Fashion MNIST, LFW datasets classification
11:30 – 11:45	Coffee break
12:00 – 13:15	Lab work: work on an example
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work: work on an example
16:00 – 16:15	Coffee break
16:15 – 18:00	Lab work: work on an example

Day 2

10:00 – 11:30	VGG, ResNet and Inception architectures. What neural networks see
11:30 – 11:45	Coffee break
12:00 – 13:15	Lab work: work on an example
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work: work on an example
16:00 – 16:15	Coffee break
16:15 – 18:00	Lab work: work on an example

Day 3

10:00 – 11:30	From classification to segmentation. Kaggle Challenges review
11:30 – 11:45	Coffee break
12:00 – 13:15	Lab work: work on an example
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work: work on an example
16:00 – 18:00	Team building

Day 4

10:00 – 11:30	Autoencoders and Variational Autoencoders. Pose estimation
11:30 – 11:45	Coffee break
12:00 – 13:15	Lab work: work on an example
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work: work on an example
16:00 – 16:15	Coffee break
16:15 – 18:00	Lab work: work on an example

Day 5

10:00 – 11:30	Reinforcement learning. Supervised learning limits
11:30 – 11:45	Coffee break
12:00 – 13:15	Lab work: work on an example
13:15 – 14:30	Lunch
14:30 – 16:00	Lab work: work on an example
16:00 – 16:15	Coffee break
16:15 – 18:00	Lab work: work on an example

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School's Syllabus

Week 6. Kaspi Lab

July 16-20

Day 1 Who is an analyst and what does he work with?

10:00 – 11:30	Who is an analyst and what is his purpose? (Part 1)
11:30 – 11:45	Coffee break
12:00 – 13:15	Who is an analyst and what is his purpose? (Part 2)
13:15 – 14:30	Lunch
14:30 – 16:00	Practical case «Analyst dedication?». Part 1
16:00 – 16:15	Coffee break
16:15 – 18:00	Practical case «Analyst dedication?». Part 2

Day 2 Where to begin?

10:00 – 11:30	Client analytics – what kind of «fruit» is it?
11:30 – 11:45	Coffee break
12:00 – 13:15	CRM + Analytics
13:15 – 14:30	Lunch
14:30 – 16:00	Developing key skills of an analyst. Part 1
16:00 – 16:15	Coffee break
16:15 – 18:00	Developing key skills of an analyst. Part 2

Day 3 Intellectual risks

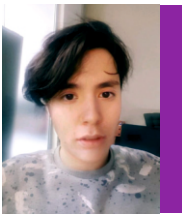
10:00 – 11:30	Credit: to be or not to be, here is the question?
11:30 – 11:45	Coffee break
12:00 – 13:15	«Measure thrice and cut once».
13:15 – 14:30	Lunch
14:30 – 16:00	Behavioral analytics as one of the main lines of protection in antifraud process. Part 1
16:00 – 16:15	Coffee break
16:15 – 18:00	Behavioral analytics as one of the main lines of protection in antifraud process. Part 2

Day 4 Artificial intelligence in Kaspi

10:00 – 11:30	Can you read between the lines? Part 1
11:30 – 11:45	Coffee break
12:00 – 13:15	Can you read between the lines? Part 2
13:15 – 14:30	Lunch
14:30 – 16:00	When system knows better than the customer does. Part 1
16:00 – 16:15	Coffee break
16:15 – 18:00	When system knows better than the customer does. Part 2

Day 5 Marketing cases

10:00 – 11:30	What to do, what to do? Definitely to buy!
11:30 – 11:45	Coffee break
12:00 – 13:15	Practical case: «To each customer, own product». Part 1
13:15 – 14:30	Lunch
14:30 – 16:00	Practical case: «To each customer, own product». Part 2
16:00 – 16:15	Coffee break
16:15 – 18:00	Practical case: «To each customer, own product». Part 3



Duman Uvatayev
Chief Data Officer

Aigerim Sagandykova
Chief Analyst,
Experimental Projects Group

Ilyas Zhubanov
Head of the data analytics department

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School's Syllabus

Week 7. Kaspi Lab

July 23-27

Kaspi Lab in numbers

8000+
students have listened presentation

7
largest specialized universities – partners

1 500+
students attended exam

100+
students had successfully passed examination and completed the training

420+
academic hours listened

40
applied problems solved

16
full-fledged analytical services developed

90% of students have found a good job

Kaspi Lab students on the basis of methods of machine learning have learnt to:

- Asses the risk profile of clients
  by developing architecture of automatic decision making system by "credit conveyor" principles;
- Optimize work processes
  through centralization of decision making contour and decreasing recourse intensity processes;
- Develop a fair evaluation of environment
  any marketing activities, regardless of communication channels (mass or personalized);
- Develop, introduce and evaluate
  various advisory systems on website based on behavioral data from website;
- Isolate primary from secondary
  on creation of design report or presentation content/ analytical summaries;
- Develop solutions on computer vision
  detection, matching, tracing, and classification of products;
- Understand business
  and implement data driven processes in a company.

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School's Syllabus

Week 8. Project challenge

July 30 – August 3

Kazakhstani companies that use data analysis will provide the program participants with challenges of real businesses. Successful graduates of the School will receive job offers.

ATF Bank

ПЕРВОЕ КРЕДИТНОЕ БЮРО

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OUR PROGRAMS

Knowledge	Science	Resources
Yessenov Lectures	Research internships	IT skills
English language	Yessenov scholarship	Komanda SOS
Promotion of science	Graduate studies	Personal performance

Kazakhstan Chess Federation

Almaty Marathon

Almaty Triathlon Federation

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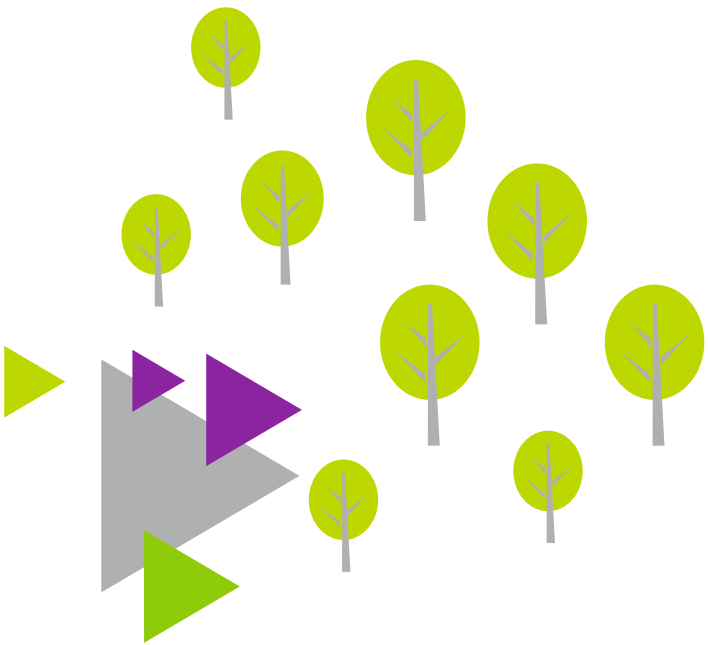

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Almaty, 2018