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# End-Probation Presentation

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**Department : Minsk Research Center**

**Starting date: 30/09/2021**

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# Introduction to Huawei Company

## **Huawei history:**

Early period – 1987 – 1992

First success – 1993 – 1996

Foreign expansion – 1997 – 2004

Foreign contract orders exceeded domestic sales – 2005

200 millions smartphones sold – 2018

Became the leading smartphone mobile brand for the first time – July 2020

# Product line



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# Department Specifications

**Department:** Minsk Research Center

**Main goal:** solving *Mixed Integer Programming* problems using different solvers.

**Team members:**

Alperyn Artsiom, Baranau Mikita, Kovalyov Mikhail, Aliaksandr Shyshou, Mark Drozd, Perednia Jana, Paliukhovich Anton, Dmitry Voynov, Swetlana Shaban, Yafim Klimasheuski, Minau Yauheni.

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# Job Description: responsibilities, experience, contribution

- Checking for the correctness of the mathematical model, and correcting mistakes, if there are any.
- Suggesting ideas for improving / optimizing the mathematical model.
- Comparing additional tools / solvers, to select the necessary to help us solve the problem.
- Reading the documentation for required solvers / dev. tools to understand how they work.
- Write high-quality code and fix some issues or bugs on the way.
- Generate tests for model.
- Running the model on the server.
- Write weekly reports to share progress with team members.
- Trying to improve existing code / model.
- If everything is fine – write reports of completed work.



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# Achievements & difficulties

## **Difficulties:**

Some difficulties with installing solvers on the server.

Non-obvious mistakes in the mathematical model.

Due to the fact that the models are large, they were solved for a long time, therefore it was necessary to optimize the code so that the model doesn't take up a lot of memory and time.

## **Achievements:**

We have optimized and corrected the model.

Read articles and books connected to MIP.

Tested and compared SunTzu solver with other commercial solvers on our model.

Completed the project as soon as possible.

Made several variations of the model, some of which are solving 9 times faster. Got a 1.2x memory reduction.

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# Plans for future & suggestions

Complete the last project on time.

Take further part in interesting projects to show that our team are capable of many things.

Study more books and articles about MIP.

Compare different commercial solvers on our model.

Write report of completed work.

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# Summary & Evaluation

## **WE**

Got acquainted with the Huawei infrastructure.  
Improved technical skills (worked with Linux servers, C++).  
Got experience in using new libraries, solvers, dev. tools.  
Got deeper understanding of MIP.  
Worked on interesting projects, which will help both small and large businesses.

## **WE**

Thank to Huawei Technologies, because we got positive experience to work with academicians, PhD's, clever team members on interesting project which is connected to programming and mathematics at the same time. During this working period we gained a lot of knowledge in different aspects of programming, team building and theory of MIP.  
Thank you for not letting us forget, but rather to improve the knowledge that we received at the university.

*The end*

THANKS

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