



بوليتكنك البحرين
Bahrain Polytechnic

Bachelor of Information Communication Technology

Year 4 Cooperative Learning Project



Bahrain Polytechnic

Bahrain Polytechnic has been established by the Bahrain Government to address the need for a skilled Bahraini labour force aimed at supporting economic growth and development. To support the development of the workforce Bahrain Polytechnic aims to produce graduates with applied, professional qualifications. It is widely acknowledged that Information Technology is a key sector and enabler for growth in any modern economy. The BICT programme aims to develop core skills for its graduates in a broad range of areas, in addition to developing the 21st Century skills necessary for today's industry.

Alignment with Strategic Priorities

Bahrain Polytechnic aims to produce graduates who are competent and confident employees, with a reputation for being work-ready, flexible and adaptable with a strong commitment to teamwork and lifelong learning.

Bachelor of ICT Structure

The Bachelor of ICT (BICT) is a four year programme, with a significant focus on project work. The programme has a common first two years, after which students choose a major for the remaining two years. The final year of the programme is dedicated entirely to project work, with students completing one project on campus (in-house project) and one project in a work placement (Cooperative Learning Project), as demonstrated in Figure 1 below.





The Cooperative Learning Project

Bahrain Polytechnic aims to produce graduates who are competent and confident employees, with a reputation of being work-ready, flexible and adaptable with a strong commitment to teamwork and lifelong learning. The programme seeks to align with this aim in its programme structure, assessment and teaching. A key component of this aim is the Cooperative Learning Project (CLP) which is a traditional work placement, with the requirement that students learn not only workplace skills, but also deliver a project of suitable academic and industry level.

The work placement specifications are as follows:

- Placements are 15 weeks duration
- Can be allocated individually or in groups
- Bahrain Polytechnic will allocate an academic project supervisor
- The project should be directly related to the student's major
- Projects should be completed at the host organisation's premises
- Projects should be of benefit to the host organisation
- Payment for work completed is not expected and is at the discretion of the employer



Adding Value to your Organisation

Students applying for work placements study one of the following majors (Database, Management Information Systems, Networking or Programming) and have completed 3 years of studying ICT courses including:

- Computer systems and Infrastructure
- Operating Systems and Platforms (Unix, Windows client and Windows Server)
- Networking, Network Security and Wireless Communication
- Programming (desktop programming, mobile programming)
- Systems Analysis and Design
- English and Communication for ICT

As there are four majors in the Bachelor of ICT, students will have completed a number of the following courses:

- Mobile Programming (iOS development)
- Advanced Programming (Development of IT solution with .Net, C#, XML, ASP)
- Infrastructure for eCommerce
- Cloud Computing
- Network Security (based on the CISCO security certification)
- Ethical Hacking (countermeasures and technologies to stop security breaches)
- Database Programming (development of web - enabled databases using Oracle technologies)

In addition students have completed a major semester long project where they implemented project management techniques and developed industry standard documentation.

This allows you to:

- free up your employees as you utilize short term talent at no cost
- Engage in social responsibility, ensuring that the experience a Bahraini student gains at your organisation will be invaluable to their career
- join us in developing the human capital to realise the Bahrain 2030 vision





Database Work Placement

The Database Systems Major provides a student with the knowledge and skills necessary to design, implement, programme and administer a database system. Students will understand the principles of database systems and will be able to implement these in different technologies. Their experience will be in a practical, real-world context which will empower them with the skills required to work with databases in an industrial environment. Students will have experience of a number of different Database Management Systems, depending upon their chosen major.

Typical positions for the database systems major graduate include:

- Database Designer: Responsible for the production and design of a database from conception to physical design using modeling techniques.
- Database Developer: Involves design of the database as well as maintenance and development of the existing database in line with the needs of the business.
- Database Programmer: Will work with existing and new databases to implement the business logic of the database system using database programming techniques.
- Database Administrator: A DBA integrates several roles and tasks required of database professionals. They would design, implement, maintain and improve the performance as well as develop databases.

Project/activities include:

- Design a database suitable for the efficient storage of data, while conforming to industry standards and best practices.
- Using query languages, store, retrieve and manipulate data.
- Use appropriate tools to design, implement and maintain database web applications.
- Plan, implement, maintain and troubleshoot database systems.
- Use database programming to solve business problems.

Technologies Bahrain Polytechnic database students are familiar with:

- Database modeling techniques
- Data Definition, Manipulation and Control Languages
- Database Programming Languages
- MySQL Workbench and Database Management System
- Oracle SQL Developer and Database Management System
- Microsoft SQL Server
- Oracle Application Express
- PHP





Management Information Systems Work Placement

The Management of Information Systems Major focuses on specifying, documenting, and implementing a system which meets the needs of the customer.

The main focus of this major is on the role that technology plays in providing an individual or an organization with the ability to plan, design, configure and administer the appropriate information system. The BICT degree majoring in MIS provides the foundation for analysis and design of information systems, the various operating systems appropriate to the tasks and the knowledge of application software to provide solutions to business problems.

Typical positions for the management of information systems major graduate may lead to:

- Systems Analyst
- System Architect
- IT System Administrator
- IT Support Analyst
- Infrastructure Support Specialist





Project/activities include:

- evaluate various operating systems, database management systems and network architecture and make recommendations based on these evaluations
- analyse user requirements and design an appropriate information system infrastructure
- design and develop an infrastructure for an information system that is fit for purpose
- develop an information system from concept to implementation

Technologies Bahrain Polytechnic MIS students are familiar with:

- Planning , requirements gathering, analysis and design for an information system
- Unix and Windows operating systems
- Data centre and IT infrastructure
- Virtualization and cloud computing
- Multi tier systems' configuration , installation , deployment and integration
- Ecommerce and payment tools





Networking Work Placement

The Networking Major focuses upon the skills necessary to design, implement and maintain a computer communication network. All students in the BICT department learn about Computer Networking using the state of the art BICT server room. The server room allows all student activities and projects to be done in a hands-on way giving the students practical work ready skills.

Typical positions for the Networking major graduate are as follows:

- Network Administrator
- Network Applications Developer
- CCNA/CCNP Engineer
- Network/Information Systems Manager
- Information System Security Officer/ Cisco Security Specialist
- 2G/3G/4G Mobile Telecommunications Engineer



Technologies Bahrain Polytechnic Networking students are familiar with:

- CCNA Exploration: Network fundamentals, TCP/IP, IP addressing and sub-netting, static routing, routing protocols (OSPF, EIGRP, RIPv2) VLANs, Inter VLAN routing, wireless access point configuration, WAN technologies (HDLC, PPP, Frame Relay), NAT
- CCNA Security: Firewall implementation, AAA (Authentication, Authorization and Accounting), access-lists, Intrusion prevention, site to site VLAN, Remote VLAN
- Wireless Networking: 2G (GSM, EDGE, GPRS), 3G (UMTS, HSDPA) 4G LTE (HSPA)

Project/activities include:

- configure and troubleshoot network devices.
- design and build a scalable internetworking enterprise network using Wide Area Network (WAN) technologies.
- implement secured network infrastructure and security policy.
- perform a risk analysis on the company's network with respect to network architecture security, authentication, encryption, network security applications and appliances, firewalls, virtual private network and intrusion and detection systems.
- apply knowledge of wireless and mobile data communication technologies to design and implement mobile communications solutions.





Programming Work Placement

Any delivery of software/hardware products requires participation of individuals with strong programming skills during both development and maintenance. The Programming Major focuses upon the design, implementation, and maintenance of software-based systems. Students learn to work with the most widely used programming languages and platforms in the global market.

Typical positions for the Programming major graduate:

- Software Developer
- Software Engineer
- App Developer
- Games Developer

Technologies Bahrain Polytechnic Networking students are familiar with:

- Java
- C#
- XCode
- Android





Project/activities include:

- Analyse client needs and produce a set of requirements to initiate a process of system development
- Design solutions for a problem description based on a given set of requirements and taking into consideration the appropriate development tool.
- Implement systems based on a given design document
- Implement software using rapid prototyping
- Implement integrated systems that may use a graphical user interface, databases and sophisticated hardware.
- Prepare a test plan for a given project.
- Test and Debug existing programs based on a test plan.
- Provide a complete set of documentation for a range of audiences ranging from technical reports to user manuals.





Mr. Nick Bishop

Testimonial from our Curriculum Advisory Committee (CAC)

Mr. Nick Bishop
Group Chief Operating Officer
BFC Group Holdings

“I have been involved since day one with the Polytechnic and the IT CAC which was not long after I first moved to Bahrain. The main reason was that I could see the importance of trying to ensure that companies and the educational institutions were closer together so that when students graduate they are ready for the work place. By participating and supporting the Polytechnic I feel that I am contributing towards the further education community by leading the committee to work with the tutors to achieve higher results.

Not only does the Polytechnic benefit from the involvement of all the committee members by interacting with the tutors, administrators, and other interested parties on a regular basis, as business leaders we are able to gain a firsthand understanding of the quality of education being delivered to the students looking to enter the work place.

The committee is always looking for new members from a broad base of companies in Bahrain to ensure that we can continue supporting the work of the Polytechnic and it is rewarding to see students graduate and join your company and impress the existing employees with their readiness for work and technical knowledge.

I look forward to my ongoing participation with the Polytechnic.”



Testimonial from our Curriculum Advisory Committee (CAC)

Ms. Khawla Allan
Director; Information Technology
Zain



Ms. Khawla Allan

“I am honored to be part of the Polytechnic IT CAC ; my role basically is to make sure that Polytechnic courses are in-line with industry/business needs. The Polytechnic tutors were very keen to ensure that their curriculum will prepare graduates to be ready to hit the ground running upon their graduation. As a CAC member, I am reflecting my practical experience and up-to-date knowledge in technology; on proposed curriculum.

We’ve employed Polytechnic students to work for Zain in different units (as part of Zain’s Future University Network program). And in IT; we had one student working for us. We were impressed not only with his technical capabilities but also with his soft skills; accordingly we offered him a permanent job and we are glad to take him in. We offer students’ visits to Zain head quarter. This enables students from visualizing a real world work environment.

I find this experience a win-win for Zain and Polytechnic.”

Testimonial from our Curriculum Advisory Committee (CAC)

Barrie R Jones BSc (Hons) MAPM
Chief Executive Officer - Gulf Computer Services W.L.L.,

“The membership has offered great insight into the Bahrain Polytechnic BSc curriculum, its activities and potential future of Bahrain’s IT expertise.”





Testimonial from our Graduates

B. ICT graduate Husain Hameed
Integration Engineer
Ericsson AB

“I am working in the Business Support Solutions (BSS) domain at Ericsson AB. The most important aspect of my job is that it offers the opportunity to learn and develop my competence besides working. It is also very inter-related to my Bachelor degree at Bahrain Polytechnic.”

Testimonial from our Graduates

B. ICT graduate Sarah Barghout
ICT Developer - Bahrain Polytechnic

“I worked in Al Baraka Islamic Bank (AIB) (IT) department during my industry project. I was given a Budgeting Control System as a Database project. It enables the users to complete purchasing transactions and generate business report. Working in AIB was extremely challenging. My employability skills improved greatly. I was assigned to develop software, and was expected to build an entire system on. I learned how to depend on myself following agility approach. I learned how to multitask, to interact within a team and manage myself. I hope other students are given the same opportunity. It would definitely be a great experience.”





Testimonial from our Graduates

B. ICT graduate Ahmed Mohamed Jawad Atshi
Information Technology Analyst
Bahrain Flour Mills Company B.S.C.

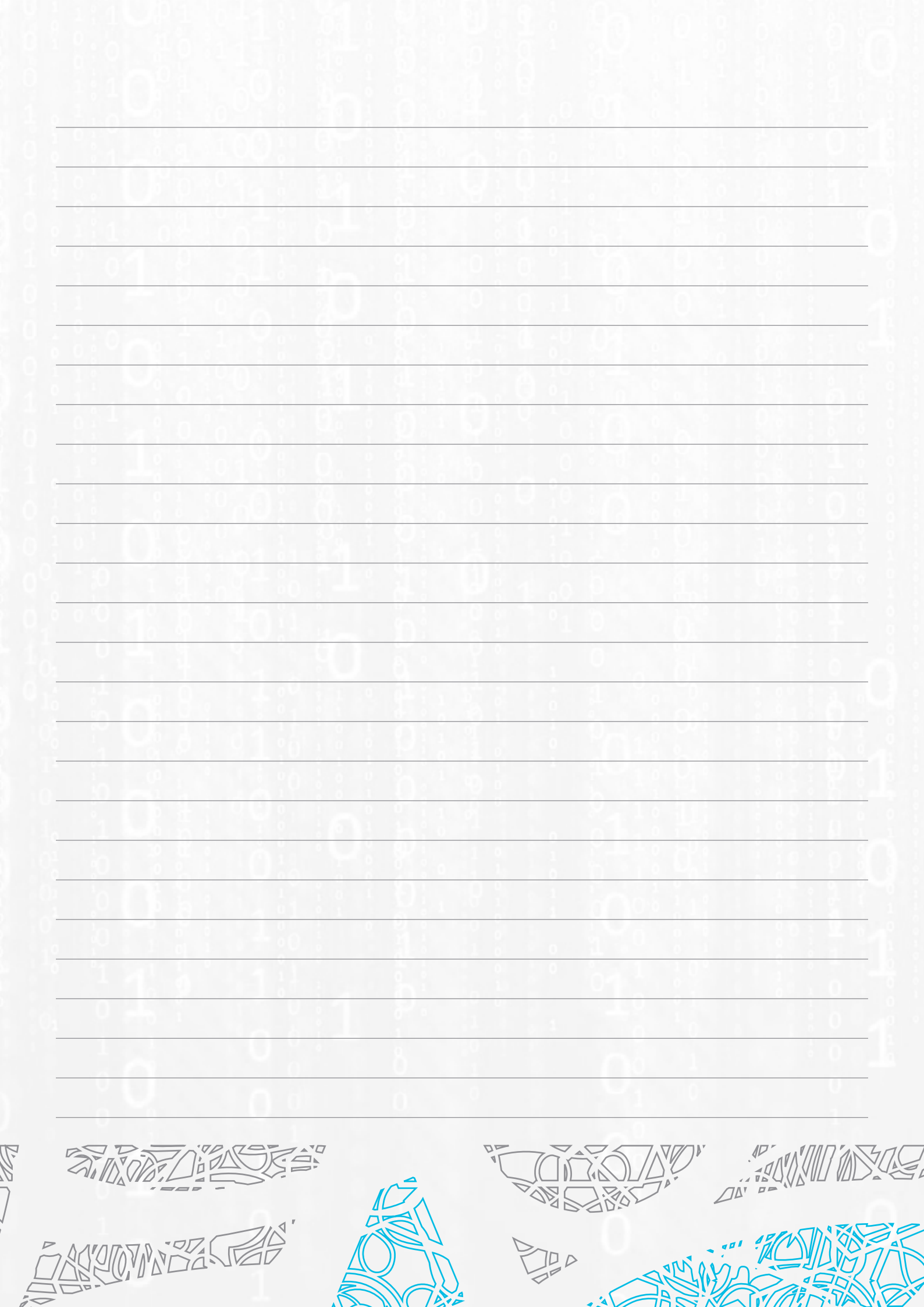
“I worked in the IT department at the Bahrain Flour Mills Company B.S.C., the most important aspect is that I was given responsibilities with good guidance and directions which prepared me for the job market. I was given the “Network Infrastructure Analysis” as my project at the company. The experience highly enriched my knowledge. I feel more confident now, having had a work exposure that has certainly improved my chances very highly by equipping me with the employability skills I need. The guidance from B.ICT faculty along the mentoring from the Flour Mills team contributed to my success.”

Testimonial from our Graduates

B. ICT graduate Mohamed Shawqi Jasim AlMutawa
System Administrator in the ICT Division - Bahrain Airport Company

“I work in the ICT department at Bahrain Airport Company. I was given a development project to create the official application of Bahrain International Airport. Working on the project did not only assist me in improving my analytical, teamwork and time management skills, but was also the golden opportunity for me as a stepping stone in the ICT career.”

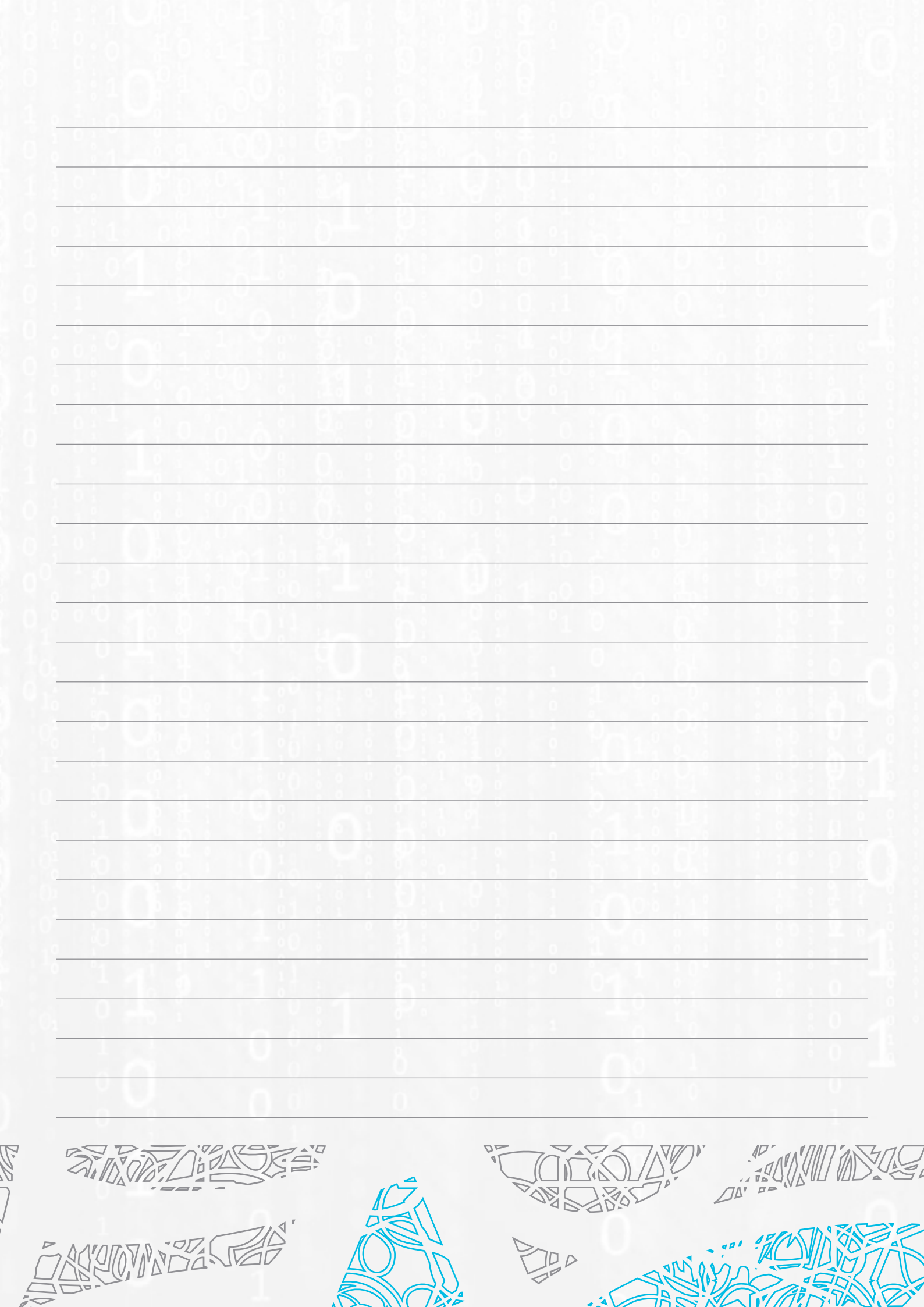




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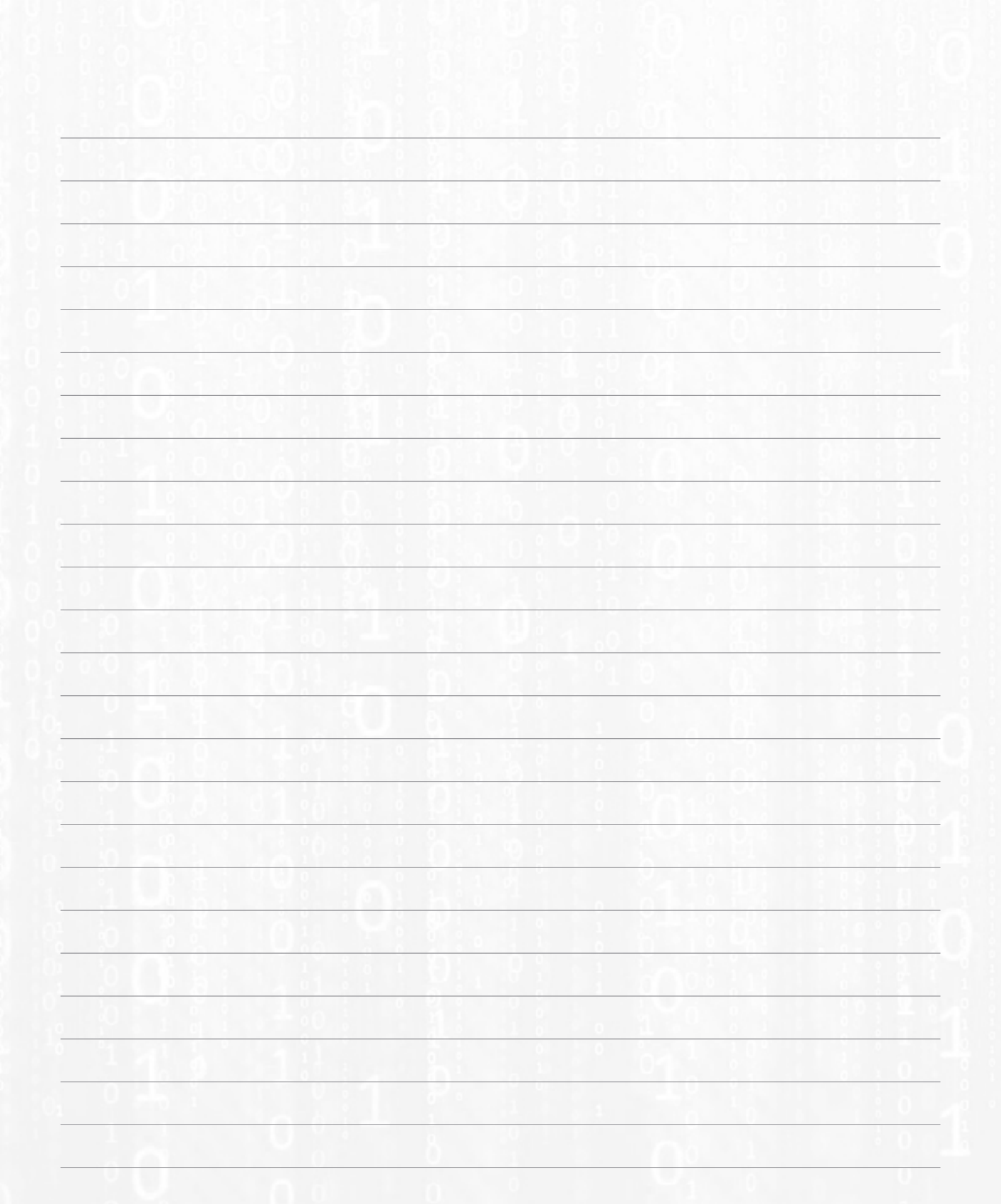




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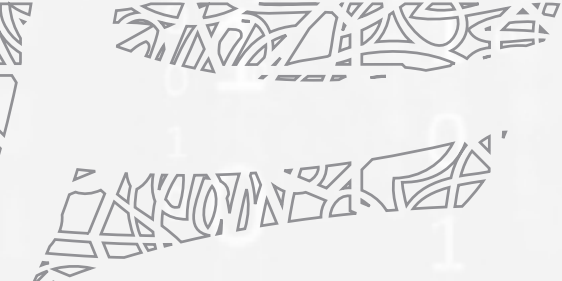
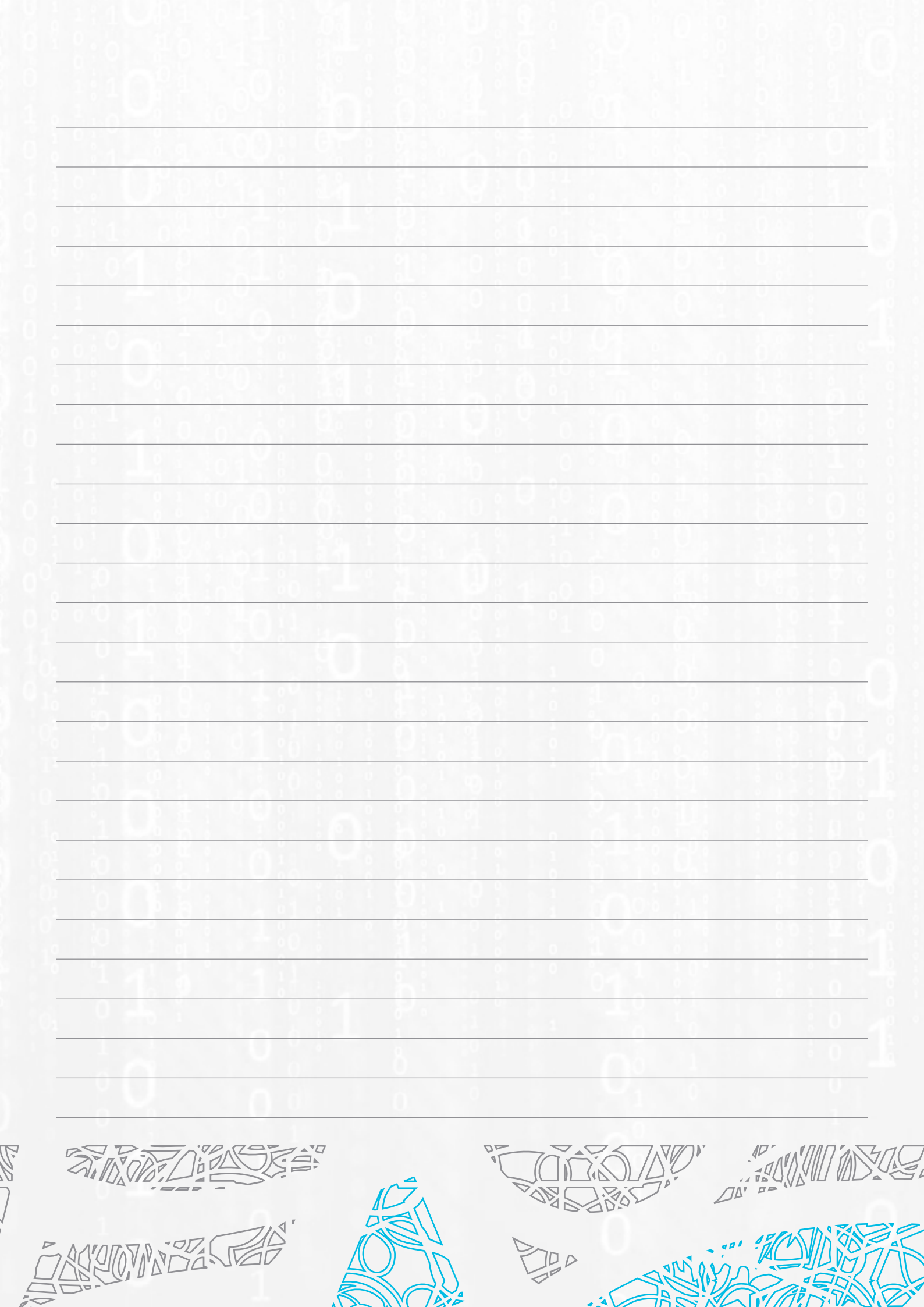












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