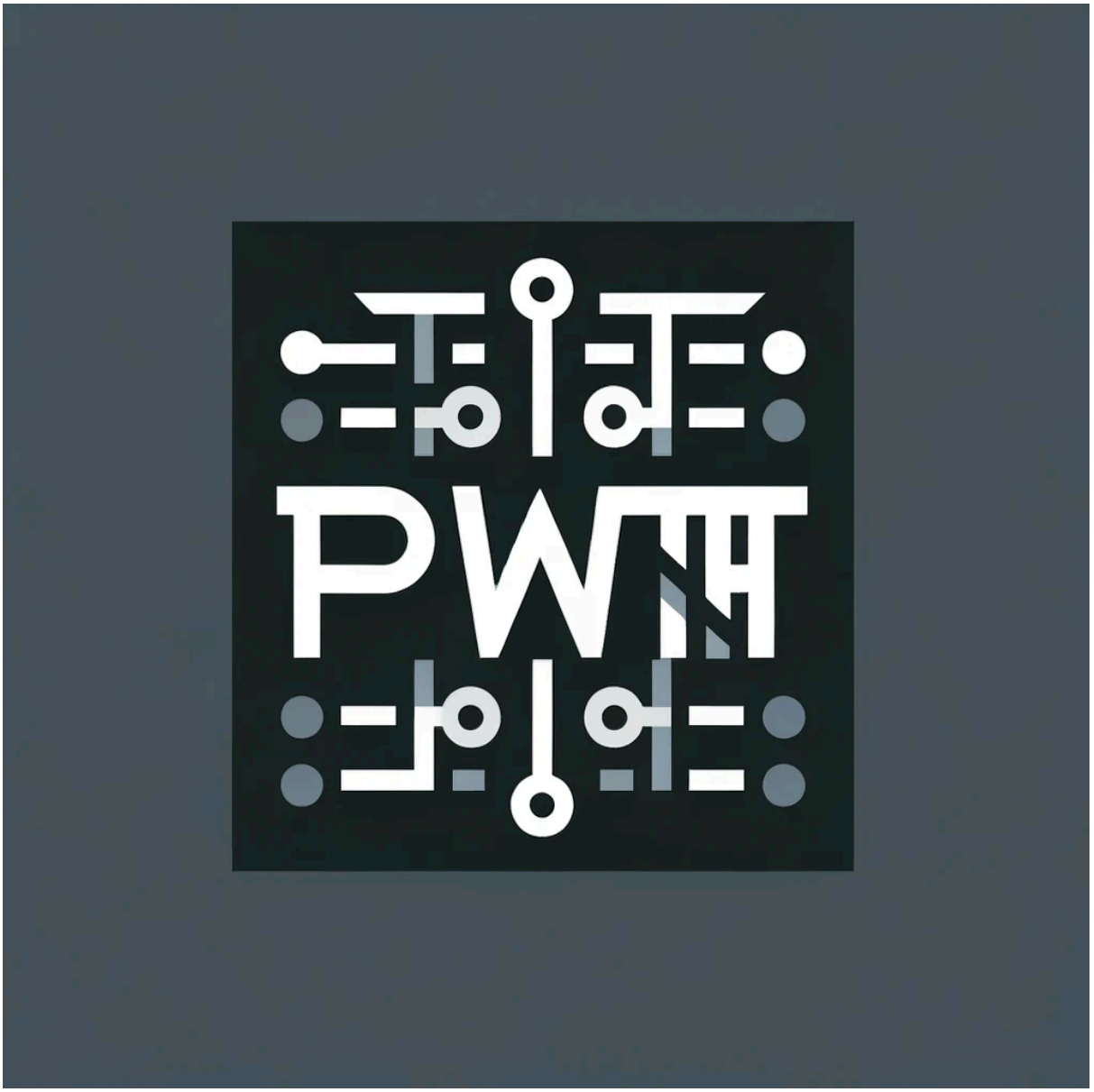

Response to the Call for tends: *Instamint*

Prepared by:

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Date: 22 March 2024

Summary of the Proposal

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Executive summary

Our company, which specializes in developing innovative technological solutions, is proposing to work with ***Instamint*** to create a platform dedicated to the world of NFTs. With in-depth expertise in blockchain, digital art and online commerce, we are committed to developing a platform that not only meets ***Instamint's*** functional and technical requirements but also aims to revolutionize the NFT market.

Our objectives are clear: to design a secure, scalable, and environmentally friendly platform that promotes the discovery, collection, and exchange of digital artworks. By focusing on the creation of a dynamic community and the integration of experts and galleries, we aim to position ***Instamint*** as the undisputed leader in the NFT market.

Completing this project within the deadline of 22 March to 3 June demonstrates our commitment to rapid and effective innovation. We are determined to deliver a platform that not only meets ***Instamint's*** expectations but also exceeds current market standards.

About PWTH

We're a group of Master 1 students with a passion for web and mobile development, and solid experience gained through a variety of projects, particularly in the e-commerce sector. Our background has enabled us to develop technical expertise in programming, UX/UI design and project management, making us ideally qualified to meet the challenges posed by the development of innovative platforms such as ***Instamint***.

Our collaborative approach and ability to innovate have enabled us to successfully complete a number of projects, including e-commerce sites that required us to have an in-depth understanding of the issues surrounding user satisfaction, transaction security and performance optimisation. This experience, combined with our knowledge of blockchain and web3 technologies, makes us the ideal partner for the ***Instamint*** project, where our ambition is to help revolutionize the NFT market.

Understanding the project

The ***Instamint*** project aims to transform the experience of digital art lovers and blockchain enthusiasts by offering a platform where discovering, collecting and exchanging NFTs becomes both intuitive and rewarding. ***Instamint*** is not just a marketplace for NFTs; its aim is to build a genuine community encompassing artists, experts and galleries, fostering a symbiotic ecosystem around digital art.

Our proposal is rooted in a deep understanding of these needs: to offer a platform that is secure, easily navigable, and compliant with SEO requirements to ensure optimum visibility. We plan to develop advanced social features, such as the creation of user groups (TEA BAGs), the integration of comments and mentions, and an intelligent notification system to engage the community. In addition, the focus will be on ease of use, with simplified user registration, profile customisation options, and robust security measures, including multi-factor authentication.

Our experience in developing e-commerce sites has prepared us to meet ***Instamint's*** technical and functional challenges, integrating cryptocurrency payment solutions and ensuring the scalability needed to manage a high volume of transactions. Finally, aware of the importance of sustainability, our solution will offer an architecture optimized to minimize environmental impact, in line with the objectives of the European Green Deal.

Proposed solution

1- Technical architecture and key functionalities :

We propose an innovative technical architecture and key functionalities specifically designed for ***Instamint,*** aimed at transcending the traditional model of NFT marketplaces. Our solution will focus on creating an integrated platform for the discovery, collection and exchange of NFTs, while cultivating a vibrant community of digital art enthusiasts, experts and galleries.

Key features of our alpha version will include the buying and selling of NFTs, user interaction via comments under publications, the publishing of NFTs, as well as the creation of TEA BAGs for collaborative user groups.
An **intelligent notification system** will be developed to encourage interaction between users, informing them of relevant activities on the platform, such as new NFTs, comments or updates to TEA BAGs. This system aims to increase engagement by creating regular and meaningful points of contact with users, thereby strengthening the ***Instamint*** community and fostering a rich and interactive experience.

The architecture will be based on microservices for greater scalability and security, with blockchain integration via Solidity smart contracts, interfaced by web3.js. This approach will set ***Instamint*** apart from other platforms by offering a complete user experience integrated into a single ecosystem.

2- Design strategies and user experience :

To create an exceptional user experience on ***Instamint***, we will take a meticulous approach, using **Figma** to develop interfaces that are both intuitive and aesthetically appealing.

This process, guided by the principles of **our detailed graphic charter**, will emphasize ease of use and promote user engagement through fluid navigation and enriching exploration of the NFTs. Our design strategy aims to simplify complex interactions such as buying, selling and trading NFTs, while ensuring accessibility and inclusivity for all users, regardless of their level of familiarity with the blockchain.

By closely integrating user feedback, developers will work to iterate quickly on the mock-ups, ensuring that every aspect of the platform is optimized for the user experience.

The carefully chosen color palette, as well as the strategic use of margins, spacing and fonts, will contribute to a consistent aesthetic and improved readability, in line with ***Instamint's*** brand guidelines. This collaborative, user-centric approach will ensure that the platform is not only functional but also visually captivating, creating a digital environment where the ***Instamint*** community can thrive.

****Our models will be attached to this response to the call for tenders.**

3- Development approach and methodologies :

In our ***Instamint*** development, we will integrate **JIRA** to structure our agility, organizing our tasks and follow-ups with weekly dailies, sprint schedules, and sprint reviews for each sprint, promoting fluid communication and clear progress.

We'll be adopting **GitHub Actions for our CI/CD needs**, automating testing and deployment to speed up the development cycle while maintaining high code quality and security. This combination of tools and practices will support our Agile methodology, ensuring continuous adaptation and improvement.

Technical documentation will be accessible via **READMEs** for maximum transparency, and architecture documentation on Confluence, promoting knowledge sharing.

Customer feedback will be at the heart of our sprint reviews, to ensure that our developments meet their expectations. Each team member will assume the role of team leader in turn per sprint, helping to manage tasks in JIRA to ensure effective collaboration and shared responsibility.
For the **Pull Request part**, each code publication will be reviewed by other team members to ensure its quality and benefit from the collective intelligence.

Technical specifications

1- Architecture details, technologies used, and blockchain integration :

Our technical architecture is based on a combination of modern and proven technologies to deliver **performance, security and scalability**.

Front-End & Back-End:

For the front-end, we'll be using **NextJS**, offering a fast, responsive user experience, while optimizing **SEO** thanks to its server-side rendering.

Our back-end microservices will be developed using **HonoJS**, chosen for its lightness and ease of integration, guaranteeing easy maintenance and seamless scalability.

Blockchain:

For blockchain management, we will be using **Solidity** to create reliable and secure smart contracts, enabling seamless integration with the **Ethereum platform**. These smart contracts will be at the heart of our NFT exchange functionalities, ensuring secure and decentralized transactions.

Hosting / Storage / Caching:

We are opting for **Microsoft Azure** for hosting, taking advantage of its robustness and ability to scale dynamically according to the needs of the platform.
Azure will also provide us with high-performance, secure data storage solutions, essential for efficiently managing the large volumes of information generated by NFTs users and transactions.

By combining these technologies, our solution will guarantee ***Instamint*** a reliable, scalable platform that is ready to welcome a large community of digital art and blockchain enthusiasts.

Versionning & CI-CD:

For versioning, we'll be using **GitHub**, a strategic choice for its robustness and ease of integration into development workflows.
Our **CI/CD pipelines on GitHub Actions** will facilitate continuous integration and deployment, enabling automated testing, security audits and smooth deployment.
Applications will be encapsulated in **Docker containers**, ensuring portability and consistency between development, test and production environments.

Testing:

We'll be adopting **Playwright and Jest** for our testing needs, offering a complete suite for testing user interface and backend functionality in a comprehensive way.

Playwright will enable **e2e testing by simulating realistic user interactions** across multiple browsers, while **Jest** will be used for **unit and feature testing**, ensuring deep test coverage and high code quality.

2- Security, scalability and GDPR compliance :

For the **"Security, scalability and RGPD compliance"** section of your ***Instamint*** proposal:

Security:

Instamint will integrate advanced security strategies to protect transactions and user data. This includes password hashing with the SHA512 algorithm, protection against SQL injections, securing HTTP headers, using robust Ethereum smart contracts and implementing multi-factor authentication (MFA) for users.
The HTTPS protocol will be used to secure communications, and specific security tests will be integrated into the CI/CD pipelines for ongoing validation.
In line with the specification, we will ensure that all third-party service/vendor accounts are protected by unique passwords and, where appropriate, that MFA is enabled.
All third-party source code will be evaluated and audited, and our project source code or any configuration files will not contain "secrets" or confidential data.
We will follow best practice in terms of generation, storage and access to passwords and all sensitive information.

Scalability:

The microservices architecture will enable efficient scalability and high resilience. By separating functionalities into different services (business management, data upload, instant messaging via websockets), each component can be sized independently according to requirements, guaranteeing optimum performance and easy maintenance.

RGPD compliance:

For European users, ***Instamint*** will implement rigorous measures such as the right to be forgotten, transparent management of personal data, explicit consent from users for the processing of their data, and guarantees of data confidentiality and accuracy. Detailed documentation will explain all the RGPD-related procedures implemented on the platform.

These measures will ensure that ***Instamint*** is not only a technically advanced platform but also secure, scalable and fully compliant with European data protection regulations.

Development Plan

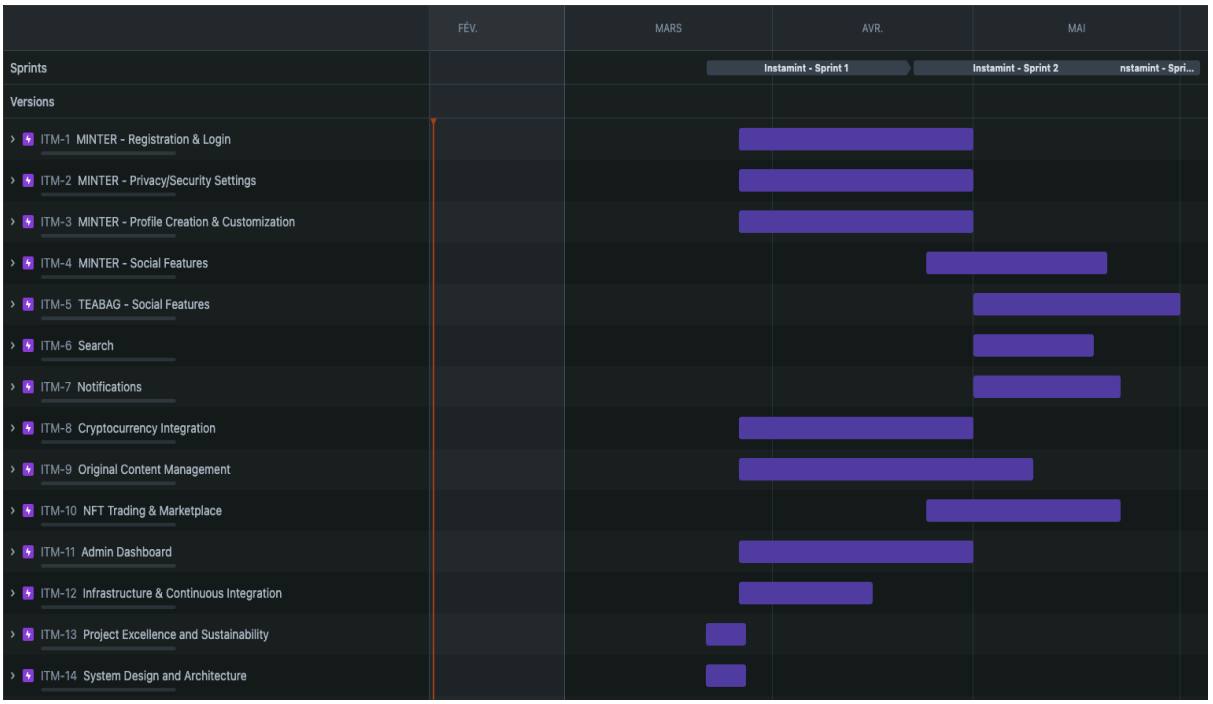
1- Phases, milestones and adjusted project schedule :

The development of ***Instamint*** will be structured in two main phases running from 22 March to 3 June, with sprints of one month each.

The first stage will involve conceptualizing the solution, including the production of mock-ups on Figma and database schemas in four days, followed by the installation of the development environment in one day.

The actual development will start on **27 March**, with a particular focus on the **main functionalities** such as registration, login, administrator management, buying/selling NFTs, publication management with the implementation of user comments below each one.
Our main objective for the first sprint, ending on 22 April, is to have the core application up and running.
The second sprint will focus on developing more in-depth features such as TEA BAGs (minter groups), messages between users, reports and notifications.

Here is our provisional schedule in the form of a **Gantt chart** with the planning of the various sprints from **22 March to 3 June** as well as the various **EPICS mentioned in the specifications** and their **provisional completion times**.



Customer feedback will be incorporated on an ongoing basis throughout development, maintaining a constant dialogue to gather their opinions and adjust our planning accordingly.
This approach ensures that the final product will best meet user expectations and market requirements.

2- Project management methodology :

Our Agile method will be embodied by a rotation of responsibilities, with each member taking responsibility for managing a sprint as **Tech Lead / Scrum Master**.

The organization of tasks will be based around a JIRA table divided into columns to show the **"To Do", "In Progress", “To Merge” and "Done"** stages.
The person in charge will prioritize the tasks in consultation with the team and lead the Agile rituals, as well as writing the sprint report and collecting feedback for continuous improvement.

Sprint success criteria will be based on progress in relation to the objectives established during the sprint planning, assessed by a sprint report written during the sprint review. Technical documentation will be updated in real time as development progresses, and the architecture will be continually reviewed by peers to ensure its relevance.

Code reviews will be carried out at each ticket completion, with designated reviewers for each Pull Request, ensuring effective integration of feedback and consistent code quality.

Budget and Payment Terms

1 - Appropriate budget estimate and payment schedule :

Development Cost:

Assuming **35 hours per week** for each of the four developers at a rate of **80 euros per hour**, over a period from **March 22 to June 3**, we estimate a total of **10 weeks of work**. This would lead to a cost estimation formula of :

4 developers * 35 hours/week * 10 weeks * 80 euros/hour.

For the Azure resources estimation:

Structural Cost:

To estimate the costs associated with Azure services for 10,000 users, we would consider factors such as expected data storage needs, bandwidth usage, compute instances, and any additional services like database management or analytics tools. Azure's pricing calculators, along with anticipated usage patterns, will help to create an accurate forecast.

Regarding the payment schedule in alignment with project milestones:

Payment Schedule:

As specified, we'll align with the terms provided in the tender document, which state that 25% of the payment will be made upon contract signing and the remaining 75% upon delivery of all deliverables.
Considering other indirect costs:

Indirect Costs:

We should also factor in the cost of software licenses, such as JetBrains for development, and any potential hardware or training that may be necessary for the team. It's prudent to allocate a percentage of the budget for these unforeseen or ancillary expenses.

Table of development costs :

Description	Quantity	Unit Cost (€)/Hour	Coût total (€)
Development (4 developers)	10 weeks * 35 h/weeks	€102.56	€143 584
JetBrains Licences	4	€190.80	€763.20
TOTAL			€144347.20
TOTAL (25%)			€36086.20

** In the unit costs per hour column, this is the gross wage.

Table of structural costs :

The structural cost forecast is based on ~10,000 users:

Services	Cost (€)	Duration (month)	Total Cost (year)
Azure Hosting	€1 527.80	1	€18333.60
Azure PostgreSQL	€1 173,95	1	€14087.40
Azure Storage	€258.52	1	€3102.24
Azure Redis Cache	€1 065.41	1	€12784.92
Azure Support	€926.05	1	€11112.6
Domain Name	€~12	12	€~12
TOTAL			€59432.76

Risk Management

1- Risk identification and mitigation strategies :

In managing the ***Instamint*** project, risk identification and mitigation are at the heart of our strategic planning. The potential risks identified are mainly related to the security of the solution and the **NFT and cryptocurrency transfer environment**, requiring heightened vigilance.

Risk Identification and Monitoring:

We will implement automated and continuous security audit processes to actively monitor and identify any potential risks as development progresses.
These audits will be integrated into our CI/CD pipeline and complemented by regular vulnerability assessments.

Mitigation strategies:

- For identified risks, several mitigation strategies will be adopted:

  - **Data redundancy:** We will implement geographic redundancy to ensure resilience and continuity of operations.
  - **Access limitation:** A role-based access management system will be implemented to limit access to data and systems to authorized persons.
  - **Ongoing training:** Our team will be regularly trained in security best practices to prevent security incidents.

Incident Response Plans:

- In the event of security incidents or data breaches:

  - **Response Team:** A dedicated team will be set up to respond immediately to incidents.
  - **Rapid Notification:** Rapid notification procedures will be established to inform stakeholders.
  - **Post-Incident Audit:** Each incident will be the subject of a detailed analysis, followed by corrective action.

External dependency management:

By using services from a market leader like Azure, we minimize the risks associated with external partners, by centralizing database, hosting and storage management.

Unforeseen Change Management :

- **Agile approach:** Our Agile project management will enable us to react quickly to unforeseen changes, development delays, or regulatory modifications.
- **Budget reserve:** A budget reserve will be allocated to manage unforeseen costs.
- **Regulatory and Technological Watch:** We will carry out continuous monitoring to anticipate legislative or market changes.
- **Continuous Feedback:** Incorporating feedback from users and stakeholders will be essential to fine-tune the product.

These **measures guarantee a proactive, structured approach to managing risk** throughout the ***Instamint*** project lifecycle.

Sustainability Plan

1 - Initiatives to minimize environmental impact :

As part of our commitment to sustainability and reducing Instamint's environmental impact, we have devised an action plan focused on efficiency and innovation.

Resource Optimization:

We will implement an advanced caching system that will significantly reduce unnecessary queries to the database, thus minimizing resource usage and carbon footprint. In addition, we are committed to writing optimized, resource-efficient and high-performance code to minimize server energy consumption.

Use of Cloud Resources:

By choosing self-scalable cloud solutions, we align our development with an eco-responsible approach. This method enables us to limit the use of resources to actual needs, avoiding over-sizing and over-consumption of energy, which helps to reduce costs and preserve the environment.

Environmental Impact Monitoring:

To monitor our impact, we will be implementing a suite of monitoring tools, such as Grafana, which will provide us with detailed metrics on resource consumption. This data will enable us to identify aspects of our application that require improvement in terms of energy efficiency, and to adopt sustainable development practices.

Innovation in terms of Sustainability:

Although the initial specification does not require specific elements related to sustainability, we are open to exploring and integrating innovations that could reinforce eco-responsible behaviors among users, while keeping abreast of the latest technological advances for a greener platform.

This sustainability plan demonstrates our commitment to delivering an Instamint platform that is not only technologically advanced, but also reflects our responsibility to the environment.

Deliveries

1 - List of deliverables, documentation and operating guides :

Our commitment to ***Instamint*** includes the provision of various key deliverables, each meeting the quality and functionality criteria defined in the specifications:

Source code: Full access to the private source code repository will be provided, including code for microservices, the front-end application, and Solidity smart contracts. This repository will also include the associated technical documentation, guaranteeing total transparency and easy maintenance.

Access to the Hosting Platform: We will create a specific role for the customer in our Azure and GitHub environment. This will enable the customer to follow the progress of the project in real time, and actively participate in the review and approval process.

Detailed documentation:

- A full suite of documentation will be provided, including:
    - **Technical code documentation** for an in-depth understanding of components and development practices.
    - **A deployment guide** describing the steps required to put the platform into production.
    - **Documentation for the development environment**, explaining how to configure and manage the local environment for development and testing.
    - **An administrator's manual** designed to enable platform operators to efficiently administer and supervise the application's functionalities.

User Experience Innovation Proposals:

We will provide a document containing two innovative proposals to improve the user experience of the solution. These proposals will be based on analysis of current trends and user feedback to ensure that they add significant value to the platform.

Full Report:

- A detailed report will be delivered, containing:
    - **The actual project schedule**, documenting progress against the original schedule.
    - **An assessment of ecological risks and/or the sustainability** of the chosen technical solutions, underlining our commitment to eco-responsible practices.
    - **The quality processes employed** throughout development to ensure compliance with the highest standards.
    - **Final presentation:** Presentation slides for the final oral presentation with the customer will be prepared. These slides will summarize the key points of the project, the proposed innovations, the risk management strategies and the benefits of the solution developed for Instamint.

These deliverables will be structured to ensure delivery by **June 3, 2024**, with intermediate milestones to validate each stage of development. A detailed schedule of deliveries will be drawn up in line with the development phases to ensure that all elements are ready within the agreed deadlines.

Conclusion

Commitment and ability to complete the project

In conclusion, our team is fully committed and has the necessary skills to successfully complete the Instamint project. With our extensive experience in the development of web and blockchain solutions, we are confident in our ability to deliver a platform that not only meets the technical and functional requirements specified in the tender, but also goes beyond them, bringing significant innovations in terms of user experience and sustainability.

We understand the challenges inherent in a project of this scale, particularly in terms of security, scalability and RGPD compliance. Our detailed proposals to address these issues demonstrate our methodical approach and commitment to delivering a high-quality solution. The risk management strategies we have put in place ensure that we can effectively anticipate and mitigate potential obstacles, ensuring smooth project progress.

Our development plan, underpinned by a well-defined schedule and clearly identified deliverables, underlines our determination to meet deadlines and expectations. Our adoption of agile methodologies and cutting-edge technologies enables us to be flexible and responsive to changing project needs, while maintaining the highest standards of quality and innovation.

By choosing our team to develop Instamint, you are joining forces with a group of passionate and dedicated professionals, ready to invest all their skills and expertise for the success of your project. We look forward to working closely with you to turn this ambitious vision into a tangible reality, and make Instamint a benchmark in the NFT and blockchain market.

We thank you for the opportunity to submit this proposal and remain at your disposal should you have any questions or wish to discuss our approach in more detail.

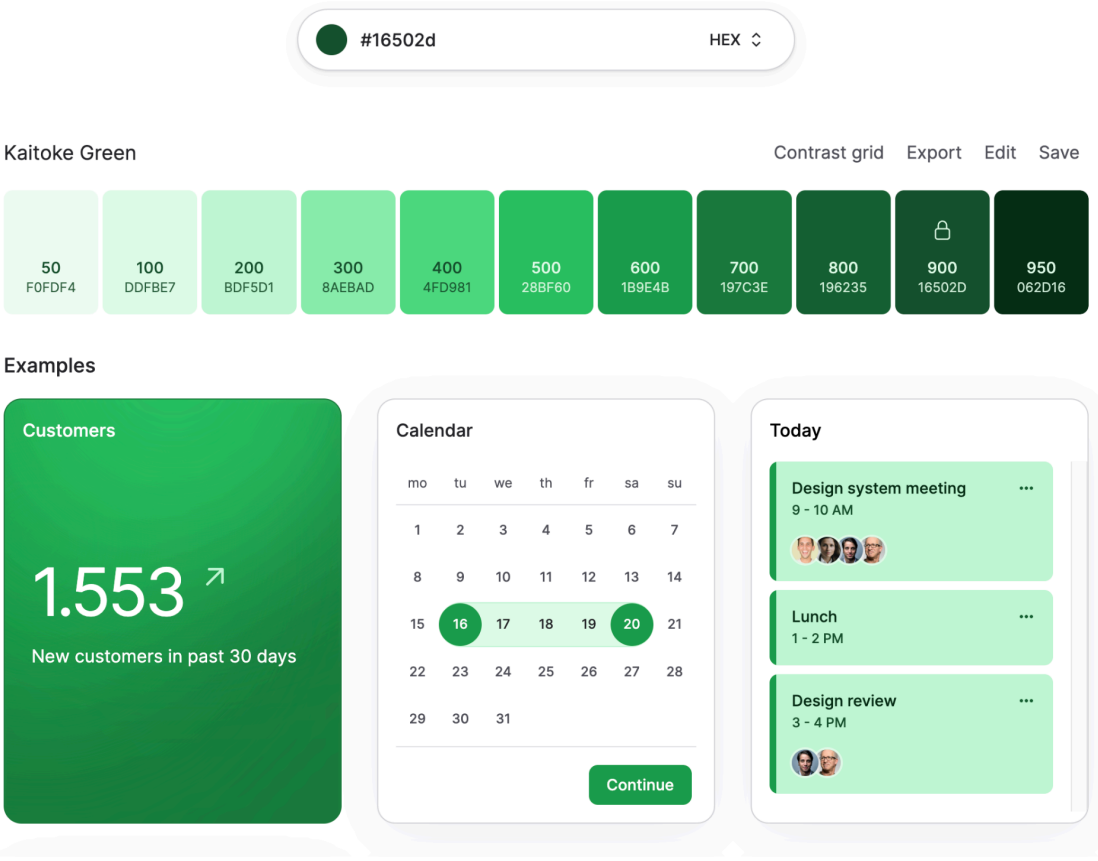
Together, let's make Instamint a revolutionary platform that marks the future of digital commerce and art.

Appendices

1- Colour palette:

"Light" theme

Accent



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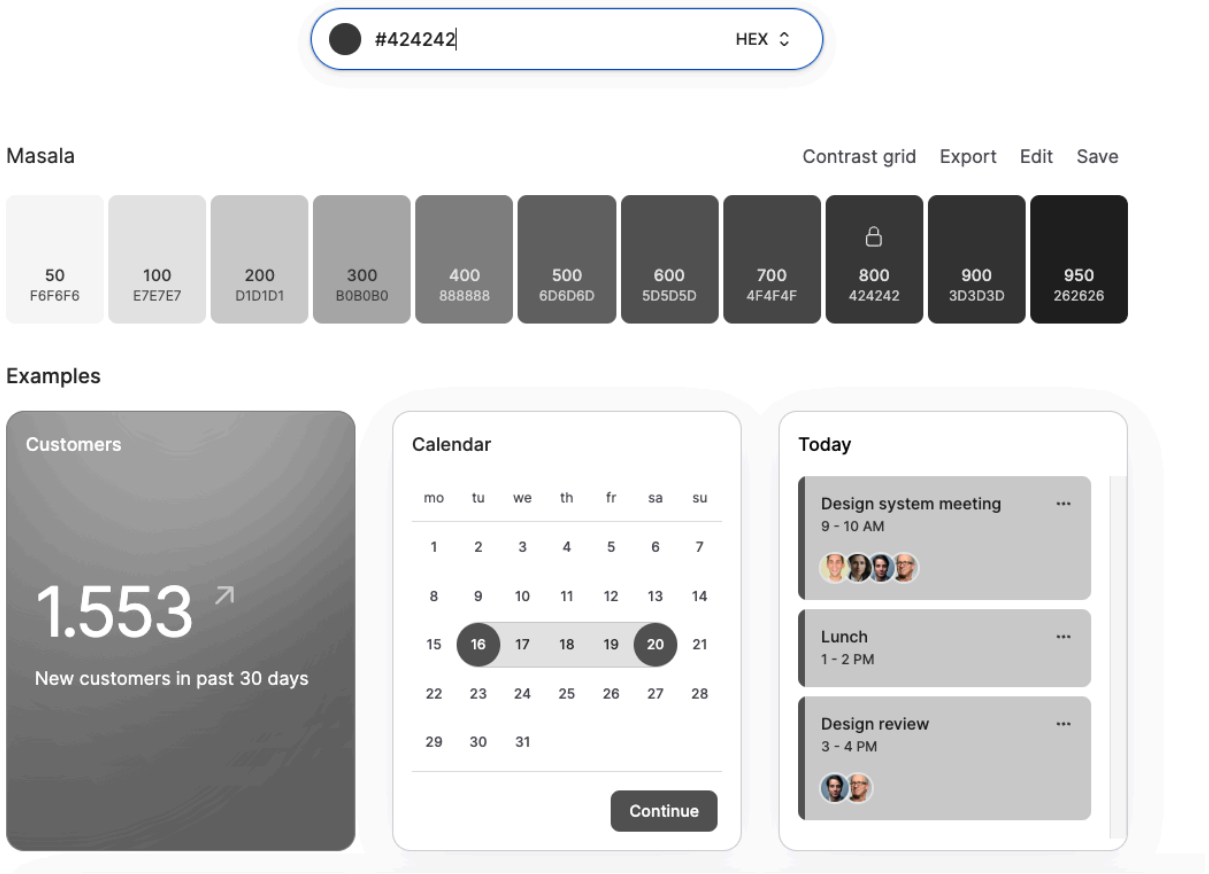
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Examples
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Today
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9 - 10 AM
Lunch
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Design review
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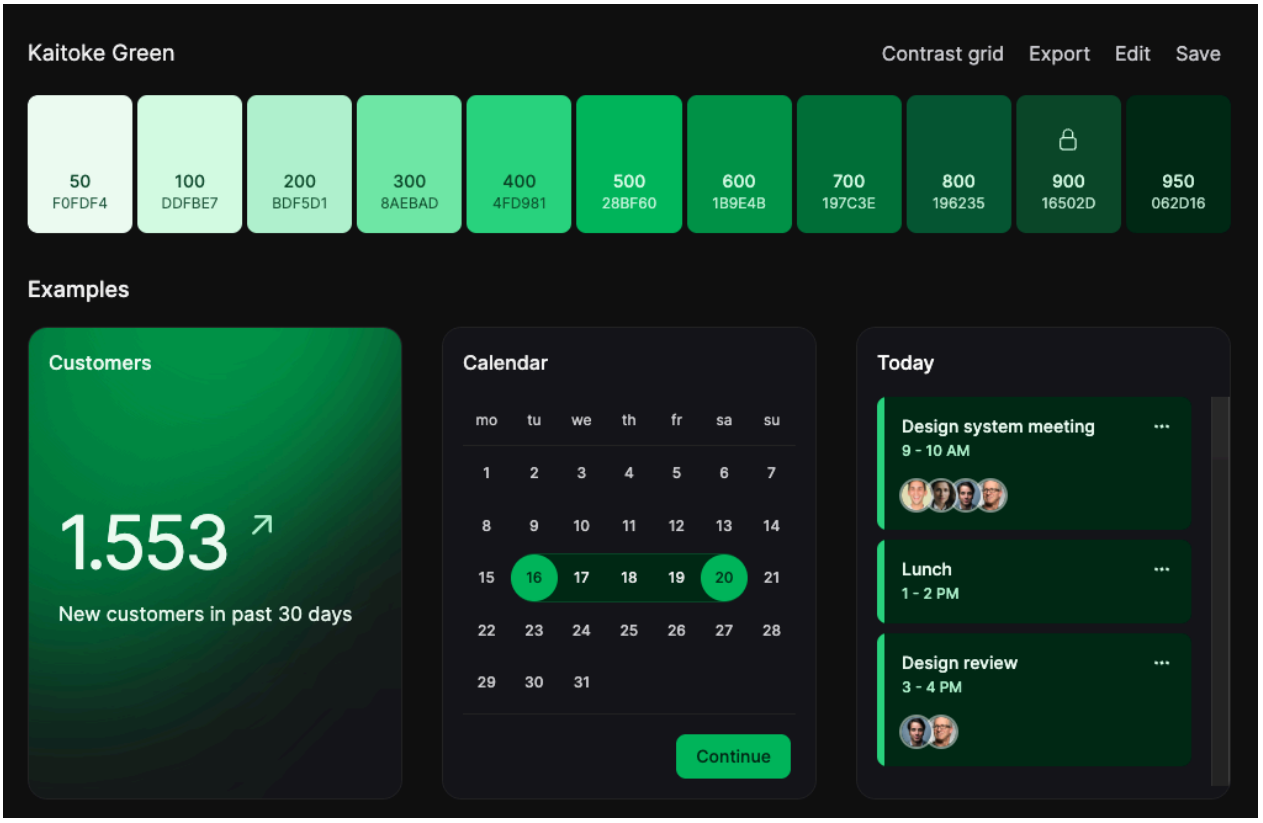
"Dark" Theme

Accent



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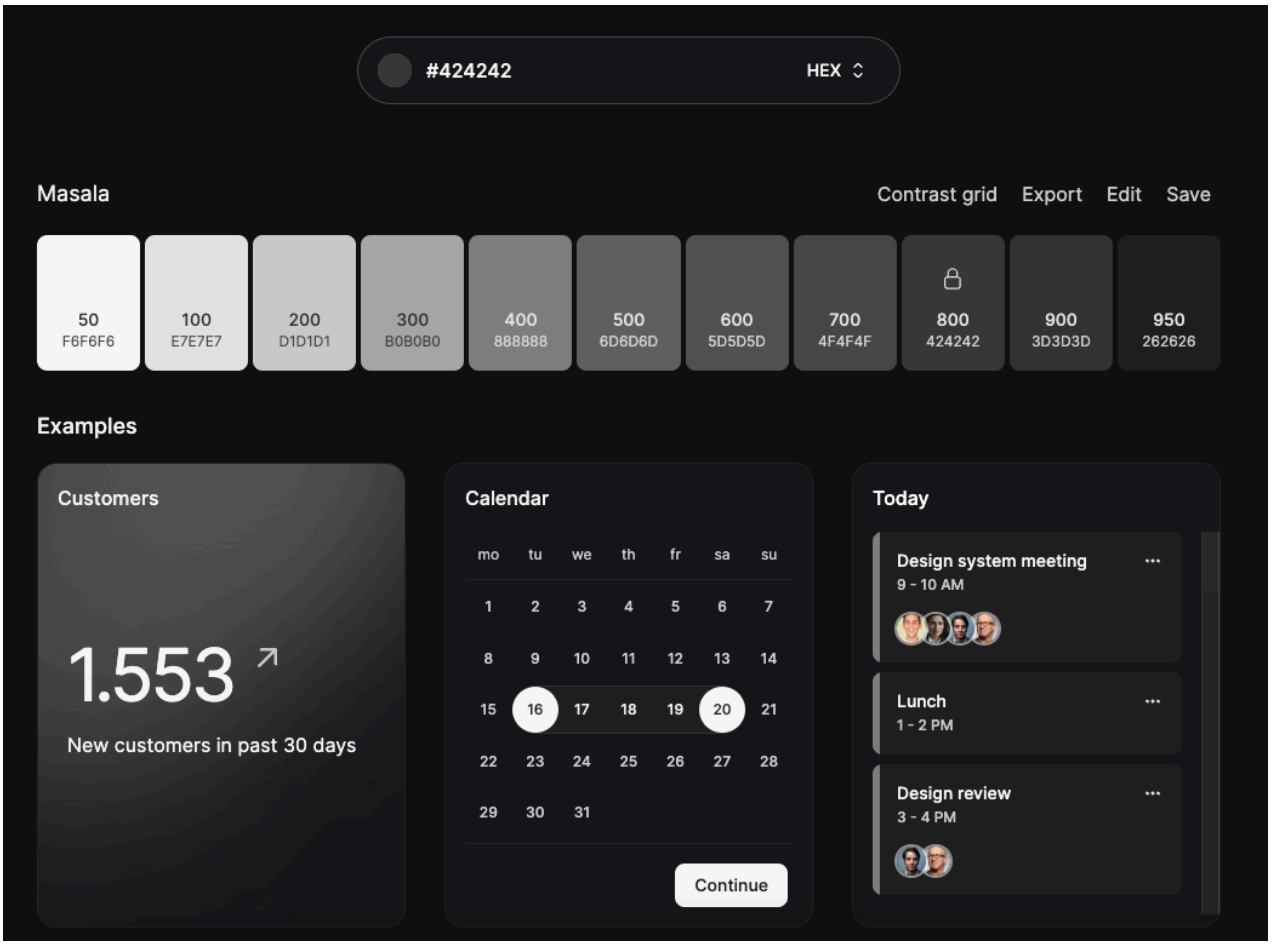
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Examples
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Today
Design system meeting
9 - 10 AM
Lunch
1 - 2 PM
Design review
3 - 4 PM

2 - Azure estimated monthly costs: ~10,000 users

Microsoft Azure Estimate

Your Estimation

Service category	Service type	Custom name	Region	Description	Estimated monthly cost	Estimated upfront cost
Storage	Storage Accounts	Blob Storage for NFT & client images/vids	France Central	Redundancy: Block blob object storage, General purpose v2, Hierarchical namespace, LRS, Hot access level, 10TB Capacity - In use, 10 x 10,000 write operations, 10 x 10,000 read operations, 10 x 10,000 iterative read operations, 10 x 100 iterative write operations, 2TB data retrieval, 1,000GB data write, SFTP disabled, 3TB index, 1 x 10,000 other operations	€258,52	€0,00
Calcul	App Service	1 Front End NextJS + 3 Microservices HonoJS + 1 Instance Backup	France Central	Premium Level V2; 5 P3V2 (4 Core(s), 14 GB RAM, 250 GB Storage) x 730 Hours; Linux Operating System; 0 SNI/SSL Connections; 0 SSL IP Connections; 0 Custom Domains; 0 Standard SSL Certificates; 0 Generic SSL Certificates	€1 527,80	€0,00
Database	Azure Database for PostgreSQL		France Central	Flexible Server Deployment, Optimised Memory Level, 3 E2dsv5 (2vCores) x 730Hours (pay-per-use), 5 GB storage, 0 provisioned IOPS, 6 TB additional backup storage - LRS redundancy, no High Availability	€1 173,95	€0,00
Database	Azure Cache for Redis		France Central	Enterprise level; x1 scaling factor (capacity 2) x 1 E10 instances x 730 Hours, Pay-as-you-go, IP cost of software is included - Central France	€1 065,41	€0,00
Support			**Support**		€926,05	€0,00
			Licensing Program	**Microsoft Customer Agreement (MCA)**		
			Billing Account			
			Billing Profile			
			Total		**€4 951,74**	**€0,00**

Disclaimer

All prices shown are in Euro Zone – Euro (€) EUR. This is a summary estimate, not a quote. For up to date pricing information please visit https://azure.microsoft.com/pricing/calculator/
This estimate was created at 2/10/2024 2:28:11 PM UTC.