

HUMAN RESOURCES MANAGEMENT SYSTEM PROJECT PROPOSAL

Project Proposal to create a HRMS System for an Engineering Company.

Managing Projects
and Teams By
S275931

Project Proposal – S275931

Table of Contents

Executive Summary.....	2
Overview.....	2
Purpose or objectives of this proposal.....	2
Identify the problem to be solved or need to be filled.....	3
Scope of the Project.....	3
Explain how the project will be conducted.	4
Ways to measure the project’s success.....	5
Project Approach	9
Methodology:	9
Project Management Plan:.....	10
Overview	10
Roles and Responsibilities	11
Quality Assurance Processes	16
Project Manager Actions and balancing Accountability, responsibility, and authority in the teams	17
Resource Allocation	20
Human Resources	20
Roles and Responsibilities of Team Members and Stakeholders	20
External Resources and Expertise	25
Project Cost Estimation	27
Expected benefits and dis-benefits of the project	37
Project Management Approaches	37
Conflict Resolution Strategies	38
Risk Management Plan	40
Five most significant risks affecting this project.	58
How these five risks will be managed	58
Communication Plan.....	59
Conclusion	60
References	60
Appendix.....	67
Project Charter.....	67
PROJECT OVERVIEW	67

PROJECT SCOPE	68
TENTATIVE SCHEDULE	68
Work Breakdown Structure.....	69
Network Diagram.....	69
Stakeholder Register	70
Kanban Board.....	79
AWS Cost Estimation.....	81
Sequence Activities Diagram.....	84

Executive Summary

This project proposal is to develop a Human Resources Management System (HRMS) for a UK based engineering company with 200 employees that is facing quality of service and compliance issues with its current outdated system. The HRMS software must automate a several HRMS features including HR administration, payroll processing, recruitment, talent management, employee data, application tracking, time and attendance management, salaries, benefits, and performance tracking, training, and development. The project must be completed within one month and within a budget of £700,000.

Overview

I am a senior project manager at Nexus Solutions, a multinational UK based software development company. I have been assigned to manage a project to develop a Human Resources Management System (HRMS) for a large engineering company with 200 employees at three sites.

Purpose or objectives of this proposal

The purpose of this proposal is to propose (and develop) an automated Human Resource Management System (HRMS) software for an engineering company with 200 employees at three sites that currently has an outdated manual human resource management system that is currently facing compliance and Quality of Service issues. The company has a budget of £700,000.00 for this project.

Objectives:

- Initiate project and project charter
- Create baseline plan and planning
- Perform objectives (accepted deliverables)
- Develop an automated Human Resource Management System that has the following functions:
 - HR administration,
 - payroll, recruitment,
 - talent management,
 - Employee data, recruitment, and application tracking
 - Time and attendance management
 - Payroll processing
 - Salaries, performance, and Benefits tracking

- Training and development, and more.
- Form a project team to deliver the project within the budget and desired time frame.
- Gather Requirements for HRMS software (requirements analysis)
- Design HRMS software
- Code HRMS software
- Build HRMS software
- Test HRMS software
- Deploy and Release HRMS software
- Choose development methodology
- Organise DevOps team(s)
- Generate Cost Estimate
- Risk Assessment and Create Risk Management Plan
- Ensure good communication with stakeholders
- Decide on project strategies
- Come up with conflict resolution plan for the teams
- Close project and achieved project documents.
- Stick to £700,000.00 budget
- Must be completed within 1 month.

Identify the problem to be solved or need to be filled.

Nexus Solutions has consulted with an UK based engineering company with 200 employees and three sites however they currently use an outdated manual human resources management system. This has resulted in problems such a quality of service and compliance issues. We have identified a solution for these problems by developing an automated Human Resources Management System software.

Scope of the Project

Purpose of proposal is to develop HR management software for engineering company,

This project proposal is to develop Human Resources Management Software (HRMS) for an engineering company with 200 employees at three sites and a budget of £700,000.

Software features to be included in the scope are:

- HR administration,
- payroll, recruitment,
- talent management,
- Employee data, recruitment, and application tracking
- Time and attendance management
- Payroll processing
- Salaries, performance, and Benefits tracking
- Training and development.
- Must Address Compliance and Quality of Service issues the company faces

What Not to include:

- Any unnecessary features that the company doesn't need to the software that will increase costs, time, and resources – Known as Gold Plating (Stellini, 2023)
- Avoid feature creep, scope creep
- Over Engineering

- Frivolous High-Risk decisions

Explain how the project will be conducted.

For this project Agile project management will be used as this is a software development project and agile is often used for software development as its iterative nature allows for changes to be made more easily if requirements or scope changes. Agile also allows for improvements to be made throughout the project and development process based on stakeholder feedback.

There will be daily scrums where the project leaders and stakeholders meet daily with the developers, DevOps team and designers to provide feedback for to monitor progress, suggest improvements, fix mistakes, and track any requirement changes and weekly sprints where the SCRUM team will set a list of tasks for the DevOps teams to complete. There should be no more than four sprints as the project's timeframe is one month.

The advantages of Agile project management are:

- Flexibility for changes in requirements and project scope
- Easier to fix mistakes, bugs, design, and code smells and antipatterns
- More room for creative problem solving
- Deadline Flexibility
- Increased project value to stakeholders due to regular updates

Challenges of Agile project management:

- Project can slip past the one-month deadline because of loose planning
- Risk of loose testing letting bugs, mistakes, antipatterns, code and design smells through
- Pace of project could be too fast for some team members
- Lack of focus causing project to go out of scope

The project will be conducted using the agile method stated above.

We will follow the five steps of the project lifecycle:

1. Project Initiation – Kick-off Meeting and define scope (Aston, 2024).
2. Project Planning –
3. Project Execution
 - a. Team Leadership – Cast project Vision
 - b. Create tasks
4. Project Monitoring and Controlling
5. Project Closure.

Key roles in this project will include:

- The steering committee led by Nexus Solutions will provide senior leadership and management for this project.
- The engineering company will be the project sponsor paying the ~£700,000 for the project. They are the project owners and the primary risk takers.
- The project manager will manage the day-to-day development, operations of the project and ensure it reaches milestones on time. The project manager will communicate with the sponsor (Nexus Solutions) to receive feedback send progress reports and make changes if requirements change

- Project team members – the consultants, designers, developers, DevOps team members, the testers, the security team, the operations team, the IT and system administrators, the project administrators, the software engineers, database developers, programmers and UI/UX designers, Tech Leads.
- User/Senior – The employees at the engineering company.

The project will employ up to 100 people with current estimates:

- 1 project manager
- 13 backend programmers
- 13 front end programmers
- 2 database developers
- 10 UI/UX designers
- 10 Testers
- 4 DevOps Engineers
- 3 Cybersecurity specialists
- 12 Software Engineers
- 6 Software designers (UML, User Case Diagrams, Class Diagrams, Entity Relationship Diagrams, Wireframes, and mock-ups)
- 5 IT Administrators
- 5 Project Administrators
- 1 IT consultant
- 3 Team Leaders (One for development team, one for operations team, one for non-technical team)
- Approximately 5-10 in steering committee
- 2 Tech Leads

Ways to measure the project's success

I have proposed several ways to measure the success of the project at all phases of the project to make sure it is completed on time, within budget, with minimal risk and meets the stakeholders' client's and users' requirements:

- Set up the 11-performance metrics that are Key Performance Indicators:
 - Time Management – Measure the actual timeline of the project against the one-month timeline using tools such as Gantt Charts, burndown charts and Kanban charts and use a metric called schedule variance to compare the actual timeline against the scheduled timeline (Donato, 2024).
 - Budget – Use a cost estimate and risk management plan for financial risks to come up with an estimated cost to see if it is within the £700,000 budget then monitor and measure actual costs against the cost estimate and budget to check if the project is still within the budget or if it has gone over budget. The client/stakeholders will be satisfied if the project is completed within the £700,000 budget however if the project is over budget then this will be problematic with the client/stakeholders and the project sponsor (Donato, 2024).
 - Project output quality and compliance – The HRMS software project must meet the desired quality standards set by Nexus Solutions, The Client (Engineering company) and national and international standards for software development and project management. Software development must meet specific quality standards including (Donato, 2024):

- Fast response time
- Reasonable throughput relevant to size of the engineering company and number of employees using it.
- Good resource utilisation – Does not use up computer and server system resources unnecessarily (no excessively high CPU, GPU, Memory, Disk Space, or network bandwidth usage)
- Must be scalable in case engineering company expands
- Very low error rate – software must be thoroughly debugged and tested, with disaster management and backups in place.
- Low latency
- Use load testing metrics
- The project must comply with the relevant UK, international and local laws, and regulations of all countries this software will operate in such as:
- Profit – As Nexus Solutions is a private third-party company in contract with the Engineering company, the project must be profitable for Nexus Solutions where there is a profit margin after including the wages for all team members and the cost of resources. If the project overruns exceeding the one-month timeframe or the £700,000 budget is exceeded and is determined to be the fault of the project sponsor (engineering company) for example due to poor cost estimates, unrealistic timeframe or budget or the engineering company keeps adding more features that will take longer than one month then the project sponsor will be liable to pay the extra costs. If the project is delayed and takes longer than one month or the budget is exceeded and is determined to be the fault of Nexus Solutions for example they made a poor cost estimate, or due to poor management. Then Nexus Solutions will have to cover the costs as this is not a fault of the project sponsor therefore will result in a loss for Nexus Solutions. Profitability is therefore a metric of the project's financial success (Donato, 2024).
- Cycle time – We will use tools to monitor the project's lifecycle as a shorter lifecycle has a better outcome for the clients/stakeholders (Donato, 2024).
- Compatibility Development – We can measure success of this project by monitoring how many new skills the team members learnt such as learning new software, programming languages, frameworks, and software development methodologies.
- Customer Satisfaction – Use the Customer Satisfaction Index to measure the project's customer satisfaction by measuring its ability to meet and exceed the engineering company's expectations in quality, outcome, delivery and to meet deadlines (Donato, 2024).
- Project Value – The engineering company may set its own metrics for success such as making sure that the project remains within the scope and that all requirements are met (Donato, 2024).
- Improvement – The ability to for the project teams to improve their efficiency based on analysing other project metrics (Donato, 2024).
- Sustainability – Measuring the project's impact on the environment, society, and economy such as monitoring the project's carbon footprint, pollutant emissions, waste and recycling, number of people employed, energy efficiency and resource consumption and stakeholder satisfaction (Donato, 2024).
- Identify Key Performance Indicators by reviewing business and project goals and aligning them so they have an idea what success looks like and define how it will be measured. This

will help stakeholders understand what success looks like by providing the necessary frameworks (Donato, 2024).

- Identify measurable factors such as meeting deadlines, staying within the budget, making a good quality product, achieving desired outcomes, and staying within the one-month time limit (Donato, 2024).
 - Identify the 11 metrics (and other metrics too) listed above and prioritise them to track the project's success. This will be based on which metrics are the most significant to the HRMS software project (Donato, 2024).
 - Set up tools to measure project performance metrics – Use tools to gather data and record metrics to create a project performance report. This can include spreadsheets, project management tools such as SmartSheet, Hive, Clickup, Microsoft Excel, Microsoft Project, Questionnaires, Surveys, and forms to provide feedback from team members, stakeholders, and the client. There is a possibility to use automated software to automatically record some performance metrics, analyse metrics and generate reports. Make constant checks on the project's performance metrics and progress (Donato, 2024).
 - Communication – Use the Communications Plan to make sure project performance metrics, reports and progress is clearly communicated between team members, project managers and all stakeholders. Performance and Progress reports must be sent back to the client to help the client track the progress and send feedback and to ensure that the project is still within bounds of the client's expectations (Donato, 2024).
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- Initiation Phase (Aston, 2024):
 - Create the Project Charter to define the HRMS software project's purpose, goals, objectives, scope, and vision.
 - Organise a Kick-off meeting with the team, client, sponsor, steering committee, and stakeholders to start the project after creating the charter, statement of work (SoW) and cost estimates and getting approval for the project.
 - Conduct feasibility study for the HRMS project case
 - Identify Stakeholders
 - Generate business case (Aston, 2024).
 - Planning Phase (Aston, 2024):
 - Start project planning using project management tools such as Kanban and Gantt charts for time management and progress tracking, Network diagrams for visually road mapping how the project's tasks are interconnected and the workflow between tasks, for successful project execution, the stakeholder register that lists all the stakeholders.
 - Create the project management plan to identify:
 - Phases
 - Activities
 - Tasks
 - Timeline
 - Schedule/Timetable
 - Work Breakdown Structure (WBS)
 - Gantt Chart
 - Create Financial Plan
 - Create Resource Plan:
 - Assemble the project teams and use resource management software to allocate resources, materials, and employees to deliver the HRMS project.

- Create quality plan to define quality targets and metrics.
- Create Risk Management Plan:
 - Assess, Identify, and analyse risks associated with the project
 - Prioritise the risks into Low, Medium, and High
 - Control the risks through risk management planning, Risk Monitoring and Risk Management and Mitigation Plans.
 - Assign an Owner.
- Create an Acceptance Plan to define the definition of done and delivered.
- Create a communication plan to plan communications with stakeholders, team members, define communication tools and plans for different types of communication.
- Create Procurement Plan to find required third-party suppliers, sign agreements for buying or renting resources for the project (Aston, 2024).
- Execution Phase (Aston, 2024):
 - Set up team leadership, project managers and leads
 - Define Tasks what needs to be done to execute the project
 - Brief team members on their assigned tasks.
 - Execute Tasks and software development process:
 - Design, code, develop, debug, build, test, deploy and release software
 - Communicate with the engineering company (client) to ensure project is being executed in a way that meets their requirements.
 - Use the communications plan for using the correct communication channels for communicating with stakeholders about the projects progress and with team members for managing the project (Aston, 2024).
- Monitoring and Control Phase (Aston, 2024):
 - Monitor the project's performance using Key performance Indicators (KPIs), cost, timeline, quality, performance metrics and success metrics using data from project management software and project documents.
 - This tracks and compares the actual project against its original plan.
 - Use the risk management plan to reduce associated risks.
 - Change management plan if the project doesn't go to plan and changes are required (Aston, 2024).
- Closure Phase (Aston, 2024):
 - Evaluate project performance using performance metrics to compare project with original plan, how well was the project managed and executed, was it completed on time and within budget?
 - Did the project go according to plan, how well was it executed, did any disasters or unexpected risks occur, did anything go wrong/setbacks?
 - Evaluate team performance – Did all team members complete their designated tasks, did any problems occur such as conflict or social loafing that had to be resolved, how motivated and satisfied were they?
 - Sign off project closure documents and all contracts officially ending the project.
 - Hand project over to client (engineering company)
 - Write a post implementation review that evaluate success, failure, lessons learned and room for improvement (Aston, 2024).

Project Approach

Methodology:

For the project to develop the HRMS system for the engineering company, Agile project management methodology will be chosen.

This is because Agile is iterative and allows for changes to be made if requirements or scope change or if mistakes are made (Olic, 2017). Agile also allows for quicker development cycles which is important in the short one-month deadline for this project. Agile allows for better communication and feedback between the project team, the client, steering committee, sponsor, and stakeholders which results in better efficiency, better quality product and better client satisfaction as it takes place during all phases of the project. Kanban Charts will be used for time management along with the use of a Gantt chart (Good, 2023).

Advantages of Agile	Disadvantages of Agile
better communication and feedback between the project team, the client, steering committee, sponsor, and stakeholders	Harder to track progress
Better Quality Product	Documentation often gets forgotten about
Better Client Satisfaction	Client, stakeholders, and teams can get distracted creating new features resulting in scope creep, feature creep, gold-plating, technical debt, and experience rot.
Quicker to deploy software	Not enough time to perfect the software due to short sprint cycles.
Detect and fix bugs, defects, mistakes, antipatterns and smells quicker	Risk of project becoming never ending.
Less time wasted on bureaucracy	More time and resources required compared to waterfall because of constant interaction between project team members and stakeholders.
Adapt to changes to requirements and scope more quickly and easily (Olic, 2017).	Fragmentation between teams resulting in technical debt, smells and antipatterns (Olic, 2017).

Agile vs Waterfall comparison table:

	Agile	Waterfall
Lifecycle	Iterative	Sequential, Linear
Speed	Project moves faster due to more flexibility (Good, 2023).	Project moves slower due to being sequential particularly during the planning phase (Good, 2023).
Planning and Structure	Planning and structure are flexible and can change quickly and easily if requirements change (Good, 2023).	Difficult to change plans after the planning phase if requirements change due to the rigidity of waterfall as detailed plans are laid out before work begins (Good, 2023).
Delivery	Deliverables are produced at all phases of the project, client can send feedback back to development team (Good, 2023).	Deliverables are produced at the end of the project during the closure phase (Good, 2023).
Contact with Client	Client communicates with and sends feedback to project team at all project phases. Improvements are made based on this (Good, 2023).	Client is not involved with project until the closure phase and project handover (Good, 2023).
Documentation	Informal documentation with less detail (Good, 2023).	Formal documentation with high details (Good, 2023).
Team Roles	Self-organising team where team members can take several roles and less reliance on the project manager (Good, 2023).	Team members have fixed pre-determined roles and rely more on the project manager (Good, 2023).
Internal Communication	Frequent and informal (Good, 2023).	Less frequent and more formal (Good, 2023).

Project Management Plan:

Overview

The project will be managed using the Situational management style which is a mix of all the other management styles (Transformational, Autocratic, Democratic, Collaborative, Bureaucratic, Charismatic, Transactional (Herrity, 2023)) that varies depending on the situation. For this project a transformational management style will be used by default as it is adaptable and is compatible with the agile project management methodology and software development methodologies, is adaptable to changing project requirements, supports innovation and sets goals for team members. Transformational management is often used in the technology industry due to rapid advancements in technology and constantly having to adapt. Transformational management helps the project manager see the big picture. However autocratic management will have to be temporarily adapted in a time of crisis due to quick decision making and top-down approach however it often fails to inspire and motivate team members long-term (Miranda, 2024) .

Roles and Responsibilities

Table of project and team member roles and responsibilities:

Role	Responsibilities
Steering Committee	<ul style="list-style-type: none"> • Oversee the project • Support the project • Determine project's direction • Define project scope • Decide project's budget • Decide project's timeline and completion deadline • Methods used for project • Make major decisions • Conflict resolution • Resolve issues • Allocate and reallocate resources • Approve the project and its budget • Get status updates on project • Collaborate with project manager (Malsam, 2022)
Project Sponsor	<ul style="list-style-type: none"> • Provide funding for the project • Establish project vision: <ul style="list-style-type: none"> ◦ Align project with business goals, objectives, and strategy • Define governance guidelines <ul style="list-style-type: none"> ◦ Ensure the project has launched and is executed properly. • Set goals and predict project benefits <ul style="list-style-type: none"> ◦ Ensure quality and manage risks • Select project manager during initiation phase • Contribute to project charter • Participate in kick off meeting • Make sure project plan is realistic and feasible • Resolve issues • Review actual progress of the project against planned progress • Provide feedback to project manager • Help project manager and team solve issues • Evaluate performance and other metrics during closure. • Make sure signoffs and handoffs are done correctly • Decide if project was a success or failure

	<ul style="list-style-type: none"> Streamline communications (Malsam, 2023)
Project Manager	<ul style="list-style-type: none"> Define project scope Keep project on schedule Generate cost estimate and stick to the budget Risk Management Time management Track progress of the project Communicate with team members, client, and stakeholders Resource management Troubleshooting (Coursera, 2024)
Users	Users of the Human Resource Management System (HRMS) at the engineering company
Backend Programmers	<ul style="list-style-type: none"> Use appropriate programming languages, frameworks, APIs, SDKs, and IDEs to develop, code and program the backend of the HRMS. Backend code must be high quality and maintainable avoiding antipatterns, technical debts and code smells. Troubleshoot and debug the backend of the HRMS Write code to manage the databases and servers Backend software development for database management, core functionality and servers Code using languages such as Python, SQL, C++, Java, C, C#, JavaScript, and PHP for backend applications (Coursera, 2024)
Frontend Programmers	<ul style="list-style-type: none"> Use appropriate programming languages, frameworks, APIs, SDKs, and IDEs to develop, code and program the frontend of the HRMS. Frontend code must be high quality and maintainable avoiding antipatterns, technical debts and code smells. Troubleshoot and debug the frontend of the HRMS Write HTML, CSS, PHP, and JavaScript code for front-end HRMS webapp webpages. Use Java, Swift, Kotlin, C++, XAML, XML for frontend mobile and desktop apps Develop frontend user interfaces for HRMS web app, desktop app and mobile app.

	<ul style="list-style-type: none"> • Make sure web, desktop and mobile user interfaces are user friendly and bug free and responsive (Coursera, 2024).
Database Developers	<ul style="list-style-type: none"> • Design, build and develop the HRMS databases • Create database backups to prevent data loss and disaster proofing • Develop security measures to prevent cyberattacks on the HRMS databases • Maintain the databases • Research database technologies to decide the best for the HRMS (Indeed, 2023).
UI/UX Designers	<ul style="list-style-type: none"> • Build wireframes and mock-ups of what the software's interfaces will look like • Analyse customer interaction using journey maps • Design interactive user interface elements • Work closely with frontend programmers to develop a working user interface • Optimize page and GUI layouts • Choose colour schemes and styles • Perform user acceptance testing to improve UI/UX design (Coursera, 2024)
Testers	<ul style="list-style-type: none"> • Create and perform tests to test the software's performance, functionality, reliability, security, scalability, and user friendliness of the HRMS • Check the HRMS for bugs and report bugs to the developers. • Perform automated tests including unit testing, system testing, regression testing, integration testing and acceptance testing. • Execute automated and manual test cases to detect and report defects, faults, bugs, and smells. • Inform the developers of any problems detected and failed tests. • Keep up to date with and use the latest testing tools (Teal Labs, Inc., 2024)
DevOps Engineers	<ul style="list-style-type: none"> • Communicate and collaborate with team members, managers, and stakeholders • Perform administrative tasks including managing servers, databases, network, security monitoring and system updates

	<ul style="list-style-type: none"> • Use DevOps tools • Use configuration management tools to automate system administration • Build, run and orchestrate software containers • Set up and manage CI/CD pipelines • Provision system architecture • Write code and scripts to automate tedious and repetitive tasks. • Collaborative management (Hall, 2024)
Cybersecurity Specialists	<ul style="list-style-type: none"> • Make sure IT, computer and network systems are updated and not vulnerable to bugs, exploits and security vulnerabilities. • Detect security vulnerabilities, bugs, exploits in the HRMS system • Make sure the HRMS is compliant with the latest security standards including encryption, data protection, authentication, secure coding practises and legislation. • Design firewalls to prevent cyberattacks and block malware • Monitor systems to detect anomalies and threats (Cybersecurity Guide Contributors, 2024).
Software Engineers	<ul style="list-style-type: none"> • Design and maintain HRMS software • Evaluate and test HRMS software • Write and test code • Software optimisation for scalability and performance • Communicate with stakeholders, team members, project manager and steering committee • Present software to client and stakeholders (Coursera, 2024)
Software Designers	<ul style="list-style-type: none"> • Design the HRMS software • Create UML Use Case, Class, and Entity Relationship diagrams for the HRMS software • Work with the UI/UX designers to create wireframes and mock-ups of the HRMS software • Work with frontend and backend programmers and software engineers to create HRMS system software with appropriate programming languages. • Redesign and upgrade software if needed

	<ul style="list-style-type: none"> • Decide on software architecture and create architectural diagrams • Check software for design smells and correct them • Collaborate with the project manager, steering committee, programmers regarding software design and development (Indeed, 2022).
IT Administrators	<ul style="list-style-type: none"> • Support, repair, update, upgrade and manage Nexus Solutions IT infrastructure especially relating to the HRMS system project. • Provide technical support to team members and stakeholders • Backup and archive project data and files • Maintain Nexus Solutions firewalls and cybersecurity systems • Troubleshooting technical difficulties with IT infrastructure affecting the team members to complete project work. • Create, manage, and delete user accounts for project team members (Indeed, 2023).
Project Administrators	<ul style="list-style-type: none"> • Administer project and stakeholder meetings and produce meeting documentation • Process project documentation and paperwork including contracts, agreements, progress and performance metrics, purchase orders and invoices, updating project time management documents • Hire third party contractors for specialised tasks • Track project tasks and document project progress • Manage project resources and budget – team members, software, hardware, services, platforms, external contracts and make sure the project remains within the £700,000 budget (Indeed, 2023).
Tech Leads	<ul style="list-style-type: none"> • Recruit, train, and hire technical team members including programmers, developers, designers, testers, engineers, specialists, IT administrators. • Troubleshoot technical difficulties, roadblocks, and setbacks

	<ul style="list-style-type: none"> • Manage project workload on different team members based on their roles, occupations, skillsets, and qualifications • Set goals for team members that align with the project, stakeholders and client and record milestones reached in the project • Supervise all technical team members and oversee development and system modifications by the technical team and reduce technical risks • Update development, programming, DevOps, administration, operations, and security tools for the project • Perform security audits (Full Scale, 2024)
IT Consultant	<ul style="list-style-type: none"> • Meetings with client (Engineering Company) to gather and analyse software and project requirements • Travel to engineering company's office or online video conference with engineering company • Provide guidance for implementing the HRMS system to the engineering company • Provide the HRMS system solution to the engineering company after analysing the requirements (Indeed, 2024).
Team Leaders	<ul style="list-style-type: none"> • Work with the project manager and steering committee and project sponsor and supervise all ,project team members • Oversee all activities within the teams • Set goals for team members to work to • Organize tasks, team members and documents • Make strategic decisions for the project teams and members • Communicate with team members, project manager, steering committee, and stakeholders (Herrity, 2023)

Quality Assurance Processes

Quality assurance processes will be in place for this project to ensure high quality deliverables for the client. A testing team will be employed on this project to test all aspects of the HRMS software and system and will provide results and feedback to the developers, project manager, tech lead and team leader and the steering committee and client. Quality assurance will reduce technical and quality

risks associated with this project (see risk management plan). Manual testing and automated testing will be used during the quality assurance process (Westland, 2022).

Manual testing will include (Testsigma, n.d.):

- Unit testing s and acceptance testing (Testsigma, n.d.).

Automated testing will include (Testsigma, n.d.):

- System testing using automated testing software such as Sonarcloud to detect bugs, design, and code smells, vulnerabilities, and software antipatterns.

The Quality Assurance Process proceeds as follows (Testsigma, n.d.):

1. Requirements Analysis – Testers will analyse functional and non-functional requirements for the project.
2. Use the requirements analysis to plan the tests including the types of tests, testing tools, testing strategy, scope and allocate tests to the testers. Tests will include (Testsigma, n.d.):
3. Design the Tests –The testers will set up a staging environment so simulate the production environment for testing (Testsigma, n.d.).
4. Run the Tests and Report Results and Issues –Document results and report any defects, errors, failed tests, or bugs (Testsigma, n.d.).
5. Perform regression testing to prove that the fixes have not caused any further problems (Testsigma, n.d.).
6. Release Testing – create new staging environment adapted to the fixes made by the developers then run smoke tests to check the HRMS's stability before releasing it (Testsigma, n.d.).

Different types of testing and quality assurance will be conducted at all stages of the project lifecycle, software development lifecycle and DevOps cycle to minimise the number of defects, improve testing efficiency and ensure a good quality product at the end of the project. This will also help reduce technical risks associated with this project.

The quality assurance process will comply with ISO 9000 standards for quality management and Capability Maturity Model Integration (CMMI) (ISO, n.d.) (ISACA, 2024).

Project Manager Actions and balancing Accountability, responsibility, and authority in the teams

As the project manager, it is my responsibility to manage the project teams and be accountable and responsible for any decisions I make that affect the management of the HRMS system project and the roles of the team members. Also, as the project manager, I will have a high level of authority to make such decisions, however the steering committee and project sponsor will have a higher level of authority than me as they own the project. The team leaders and tech leads also have a high level of authority but to a lesser extent than the project manager. The other team members will have some authority but less than the management, leaders, steering committee, and project sponsors as they will be able to communicate and provide feedback to the management and leads. All team members will have accountability for their actions and consequences whether good or bad however the management, leads, steering committee and sponsor will have the highest levels of accountability. All team members are committed to specific responsibilities depending on their role (see Roles and Responsibilities section). All team members are responsible to follow Nexus Solutions code of conduct and any agreements and contracts they are bound by.

The project management will use situational leadership although will be transformational under normal circumstances as it motivates team members, encourages innovation and is standard for the technology industry (see Overview for details)

To get this balance right as the project manager I must:

- Lead by example by taking responsibility for my own actions, learn from mistakes
- Avoid micromanagement – do not over supervise team members' work and obsessively tell them what to do and criticise them constantly (University of Southampton, n.d.) (Herrity, 2023).
- Set expectations for team members (University of Southampton, n.d.).
- Motivate team members by praising them for accomplishing project milestones and recognising their work (University of Southampton, n.d.).
- I must give constructive feedback to team members Project Timeline and Milestones

I have created a Gantt Chart with the for the project's timeline for key phases and tasks and to compare the actual timeline of completed tasks against the planned timeline for completed tasks and for tracking progress and milestones. Red is the planned timeline and green is the actual timeline.

The Gantt Chart can also be viewed here: <https://managing-projects-and-teams-diagrams.onrender.com/static/HRMSPProjectGanttChart.pdf>

[illegible]

Resource Allocation

Human Resources

Roles and Responsibilities of Team Members and Stakeholders

Role	Responsibilities
Steering Committee	<ul style="list-style-type: none"> • Oversee the project • Support the project • Determine project's direction • Define project scope • Decide project's budget • Decide project's timeline and completion deadline • Methods used for project • Make major decisions • Conflict resolution • Resolve issues • Allocate and reallocate resources • Approve the project and its budget • Get status updates on project • Collaborate with project manager (Malsam, 2022)
Project Sponsor	<ul style="list-style-type: none"> • Provide funding for the project • Establish project vision: <ul style="list-style-type: none"> ◦ Align project with business goals, objectives, and strategy • Define governance guidelines <ul style="list-style-type: none"> ◦ Ensure the project has launched and is executed properly. • Set goals and predict project benefits <ul style="list-style-type: none"> ◦ Ensure quality and manage risks • Select project manager during initiation phase • Contribute to project charter • Participate in kick off meeting • Make sure project plan is realistic and feasible • Resolve issues • Review actual progress of the project against planned progress • Provide feedback to project manager • Help project manager and team solve issues • Evaluate performance and other metrics during closure. • Make sure signoffs and handoffs are done correctly • Decide if project was a success or failure

	<ul style="list-style-type: none"> Streamline communications (Malsam, 2023)
1 Project Manager	<ul style="list-style-type: none"> Define project scope Keep project on schedule Generate cost estimate and stick to the budget Risk Management Time management Track progress of the project Communicate with team members, client, and stakeholders Resource management Troubleshooting (Coursera, 2024)
200 Users	Users of the Human Resource Management System (HRMS) at the engineering company (Not project team members)
13 Backend Programmers	<ul style="list-style-type: none"> Use appropriate programming languages, frameworks, APIs, SDKs, and IDEs to develop, code and program the backend of the HRMS. Backend code must be high quality and maintainable avoiding antipatterns, technical debts and code smells. Troubleshoot and debug the backend of the HRMS Write code to manage the databases and servers Backend software development for database management, core functionality and servers Code using languages such as Python, SQL, C++, Java, C, C#, JavaScript, and PHP for backend applications (Coursera, 2024)
13 Frontend Programmers	<ul style="list-style-type: none"> Use appropriate programming languages, frameworks, APIs, SDKs, and IDEs to develop, code and program the frontend of the HRMS. Frontend code must be high quality and maintainable avoiding antipatterns, technical debts and code smells. Troubleshoot and debug the frontend of the HRMS Write HTML, CSS, PHP, and JavaScript code for front-end HRMS webapp webpages. Use Java, Swift, Kotlin, C++, XAML, XML for frontend mobile and desktop apps

	<ul style="list-style-type: none"> • Develop frontend user interfaces for HRMS web app, desktop app and mobile app. • Make sure web, desktop and mobile user interfaces are user friendly and bug free and responsive (Coursera, 2024).
2 Database Developers	<ul style="list-style-type: none"> • Design, build and develop the HRMS databases • Create database backups to prevent data loss and disaster proofing • Develop security measures to prevent cyberattacks on the HRMS databases • Maintain the databases • Research database technologies to decide the best for the HRMS (Indeed, 2023).
10 UI/UX Designers	<ul style="list-style-type: none"> • Build wireframes and mock-ups of what the software's interfaces will look like • Analyse customer interaction using journey maps • Design interactive user interface elements • Work closely with frontend programmers to develop a working user interface • Optimize page and GUI layouts • Choose colour schemes and styles • Perform user acceptance testing to improve UI/UX design (Coursera, 2024)
10 Testers	<ul style="list-style-type: none"> • Create and perform tests to test the software's performance, functionality, reliability, security, scalability, and user friendliness of the HRMS • Check the HRMS for bugs and report bugs to the developers. • Perform automated tests including unit testing, system testing, regression testing, integration testing and acceptance testing. • Execute automated and manual test cases to detect and report defects, faults, bugs, and smells. • Inform the developers of any problems detected and failed tests. • Keep up to date with and use the latest testing tools (Teal Labs, Inc., 2024)
4 DevOps Engineers	<ul style="list-style-type: none"> • Communicate and collaborate with team members, managers, and stakeholders

	<ul style="list-style-type: none"> • Perform administrative tasks including managing servers, databases, network, security monitoring and system updates • Use DevOps tools • Use configuration management tools to automate system administration • Build, run and orchestrate software containers • Set up and manage CI/CD pipelines • Provision system architecture • Write code and scripts to automate tedious and repetitive tasks. • Collaborative management (Hall, 2024)
3 Cybersecurity Specialists	<ul style="list-style-type: none"> • Make sure IT, computer and network systems are updated and not vulnerable to bugs, exploits and security vulnerabilities. • Detect security vulnerabilities, bugs, exploits in the HRMS system • Make sure the HRMS is compliant with the latest security standards including encryption, data protection, authentication, secure coding practises and legislation. • Design firewalls to prevent cyberattacks and block malware • Monitor systems to detect anomalies and threats (Cybersecurity Guide Contributors, 2024).
12 Software Engineers	<ul style="list-style-type: none"> • Design and maintain HRMS software • Evaluate and test HRMS software • Write and test code • Software optimisation for scalability and performance • Communicate with stakeholders, team members, project manager and steering committee • Present software to client and stakeholders (Coursera, 2024)
6 Software Designers	<ul style="list-style-type: none"> • Design the HRMS software • Create UML Use Case, Class, and Entity Relationship diagrams for the HRMS software • Work with the UI/UX designers to create wireframes and mock-ups of the HRMS software • Work with frontend and backend programmers and software engineers to create HRMS system software with appropriate programming languages.

	<ul style="list-style-type: none"> • Redesign and upgrade software if needed • Decide on software architecture and create architectural diagrams • Check software for design smells and correct them • Collaborate with the project manager, steering committee, programmers regarding software design and development (Indeed, 2022).
5 IT Administrators	<ul style="list-style-type: none"> • Support, repair, update, upgrade and manage Nexus Solutions IT infrastructure especially relating to the HRMS system project. • Provide technical support to team members and stakeholders • Backup and archive project data and files • Maintain Nexus Solutions firewalls and cybersecurity systems • Troubleshooting technical difficulties with IT infrastructure affecting the team members to complete project work. • Create, manage, and delete user accounts for project team members (Indeed, 2023).
5 Project Administrators	<ul style="list-style-type: none"> • Administer project and stakeholder meetings and produce meeting documentation • Process project documentation and paperwork including contracts, agreements, progress and performance metrics, purchase orders and invoices, updating project time management documents • Hire third party contractors for specialised tasks • Track project tasks and document project progress • Manage project resources and budget – team members, software, hardware, services, platforms, external contracts and make sure the project remains within the £700,000 budget (Indeed, 2023).
2 Tech Leads	<ul style="list-style-type: none"> • Recruit, train, and hire technical team members including programmers, developers, designers, testers, engineers, specialists, IT administrators. • Troubleshoot technical difficulties, roadblocks, and setbacks

	<ul style="list-style-type: none"> • Manage project workload on different team members based on their roles, occupations, skillsets, and qualifications • Set goals for team members that align with the project, stakeholders and client and record milestones reached in the project • Supervise all technical team members and oversee development and system modifications by the technical team and reduce technical risks • Update development, programming, DevOps, administration, operations, and security tools for the project • Perform security audits (Full Scale, 2024)
1 IT Consultant	<ul style="list-style-type: none"> • Meetings with client (Engineering Company) to gather and analyse software and project requirements • Travel to engineering company's office or online video conference with engineering company • Provide guidance for implementing the HRMS system to the engineering company • Provide the HRMS system solution to the engineering company after analysing the requirements (Indeed, 2024).
3 Team Leaders (one for development, one for operations, one non-technical)	<ul style="list-style-type: none"> • Work with the project manager and steering committee and project sponsor and supervise all ,project team members • Oversee all activities within the teams • Set goals for team members to work to • Organize tasks, team members and documents • Make strategic decisions for the project teams and members • Communicate with team members, project manager, steering committee, and stakeholders (Herrity, 2023)

External Resources and Expertise

External Resources will include:

- Cloud computing platforms such as Amazon Web Services (AWS) for any cloud-based aspects of the HRMS system.
- Third-party software for design, development, coding, building, testing and deployment of the HRMS system.

- Adobe XD
- Draw.io
- StarUML
- PyCharm and other JetBrains IDEs
- Visual Studio
- Xcode, Android Studio
- Programming Languages - Python, HTML, CSS, SQL, JavaScript, C++, C, C#, Java, Kotlin, Swift.
- MySQL, SQLite Studio
- Docker, Kubernetes, AWS ECS, AWS ECR
- SonarCloud, SonarQube
- Postman
- Webhosting platform e.g. Render.com
- GitHub, Git, GitLab, AWS CodeCommit
- Third-party project, team and task management software and services.
 - Asana
 - Trello
 - SmartSheet
 - Microsoft Office, Project
 - Jira
- Third-party Communication and Collaboration Platforms.
 - Microsoft Teams for Work and School
 - Zoom
 - Microsoft Outlook
 - WhatsApp Business
 - Slack
- Third-party suppliers for computer hardware and specialist equipment/hardware for the project.

External expertise will include:

- Specialist technical support with third party software, services, and cloud computing platform.
- Specialist technical support with third party non-technical and project management software, services, and platforms.
- Customer service, technical support, repairs, and upgrades to hardware supplied externally from the manufacturer or supplier.
- Installation and setup of specialist equipment.

Project Cost Estimation

Project Title: Human Resource Management System for Engineering Company

Project Manager: S275931

COMBINED TOTAL COST				£465,250.17
PRODUCT EXPENSES				
ITEM NAME	ITEM DESCRIPTION	UNITS	£ / UNIT	TOTAL
JetBrains IDEs inc. PyCharm	JetBrains IDEs including PyCharm for coding/programming backend and frontend HRMS system software and applications to develop code functionality, desktop, and web apps with JetBrains AI Pro (JetBrains, 2024)	1 (One Year Organisation License for all team members) (JetBrains, 2024)	£956.40 Per Year (JetBrains, 2024)	£956.40
Adobe Creative Cloud	Adobe Creative Cloud apps inc. XD, Photoshop, Illustrator, Dreamweaver, InDesign for creating wireframes, mock-ups, and webpages and software graphics (Adobe, 2024)	61 Licenses for team members who need it. (Adobe, 2024)	£78.59 Per User Per Month (Adobe, 2024)	£3,994.89
Visual Studio Enterprise	Visual Studio Enterprise for Programming, Development and DevOps, core functionality, Windows Desktop Application (Microsoft, 2024)	80 Licenses for 80 technical users (programmers, DevOps, Software Engineers, IT Admins, Testers)	£196.24 (\$250) Per User Per Month (Microsoft, 2024)	£15,699.20 (\$20,000)
Xcode – Apple Developer Program	Xcode – Apple Developer program for iOS, iPad OS and macOS HRMS Application (Apple, 2024)	1 license for entire team (Apple, 2024)	£77.71 (\$99) Per Year (Apple, 2024)	£77.71 (\$99)
Android Studio	Android Studio IDE for developing HRMS app for Android devices			
GitHub Enterprise	GitHub Enterprise for version control (GitHub, 2024)	80 Technical Users	£16.40 (\$21) Per User Per Month (GitHub, 2024)	£1,318.40 (\$1,680)
SonarCloud	SonarCloud/SonarQube for automated software testing and System Testing (Sonar, 2024)	1 Monthly License for team (Sonar, 2024)	£4,472.7 (€5,250) Per Month (Sonar, 2024)	£4,472.79 (€5,250)
Postman	Postman for System and API testing (Postman, 2024)	48 Users (Testers, Programmers)	£38.46 (\$49) per user per month.	£1,846.08 (\$2,352)

		and Software Engineers) (Postman, 2024)	(Postman, 2024)	
Docker	Docker containerisation platform and software (Docker, 2024)	54 Users (Docker, 2024)	£18.84 (\$24) per user per month (Docker, 2024)	£1,017.36 (\$1,296)
MySQL Enterprise Edition	MySQL database management/development software (Oracle, 2024)	1 Team (Oracle, 2024)	£8,546.09 per year (Oracle, 2024)	£8,546.09
StarUML	StarUML for UML software design diagrams (StarUML, 2024)	55 Users – Programmers, DB Developers, Software Engineers, Software Designers, Tech Leads, IT Administrators (StarUML, 2024)	£156.21 (\$199) per user (StarUML, 2024)	£8,580
Microsoft 365 Business Premium inc. MS Teams	Microsoft 365, Office, Outlook and Teams for office work, communication, email, videoconferencing, collaboration (Microsoft, 2024)	100	£18.10 per user per month (Microsoft, 2024)	£1,810
Zoom Business	Zoom for videoconferencing (Zoom, 2024)	100	£17.49 per user per month (Zoom, 2024)	£1,749
Slack	Slack for project, team, and DevOps collaboration (Slack, 2024)	100	£11.70 per user per month (Slack, 2024)	£1,170
WhatsApp Business	WhatsApp Business for communication (Meta, 2024)	100	Contact Sales (Meta, 2024)	Contact Sales (Meta, 2024)
SmartSheet	SmartSheet project, team, and work management software (Smartsheet, 2024)	100	£19 per user per month (Smartsheet, 2024)	£1,900
Microsoft Project	Microsoft Project software for project management, resource management, task management, time management (Microsoft, 2024)	100	£45.20 per user per month (Microsoft, 2024)	£4,520
Trello	Trello Enterprise for task management for project (Atlassian, 2024)	100	£13.74 (\$17.50) per user per	£1,374 (\$1,750)

			month (Atlassian, 2024)	
Render.com	Render.com for hosting HRMS web app (Render.com, 2024)	1	£351.56 (\$450) per month (Render.com, 2024)	£351.56 (\$450)
AWS	Amazon Web Services for cloud components of HRMS System (Amazon, 2024)	1	£75,783.58 (\$97002.82) Upfront: £40,651.94 (\$52,034.40) Monthly: £35,131.64 (\$44,968.42) (Amazon, 2024)	£75,783.58 (\$97002.82) (Upfront + First Month during project)
Jira	Atlassian Jira Project Management Software (Atlassian, 2024)	100	£9.80 (\$12.48) (Atlassian, 2024)	£980
PRODUCT EXPENSE TOTAL				£127,249.01

LABOUR EXPENSES				
TASK NAME	TASK DESCRIPTION	HOURS (8 HRS/DAY)	£ / HOUR	TOTAL
IT Consultation	Pre-Project IT consultation with Engineering Company to gather requirements.	8 (1x8) 1x IT Consultant (Payscale, 2024)	IT Consultant = £22.36 x 1	£178.88
Project Charter	Write project charter defining scope, goals, stakeholders, and financing	96 (12x8) 1x Project Manager (Glassdoor, 2024) 10x steering committee 1x project sponsor (Glassdoor, 2024)	Project Manager = £26.98 x 1 Steering Committee = N/A Project Sponsor = £20.35 x 1	£378.64
Feasibility Study	Assess the feasibility of project in terms of finance, technical, business, time, operational, ethical, and legal factors	88 (11x8) 1x Project Manager (Glassdoor, 2024) 10x Steering Committee	Project Manager = £26.98 x 1 Steering Committee = N/A	£215.84

Define Scope	Define scope – what the project is and is not, project description, deliverables, justification, exclusions, constraints, assumptions	80 (10x8) 10x Steering Committee	Steering Committee = N/A	N/A
Kick-off Meeting	Upon approval of Project Charter, the kick-off meeting led by project manager, sponsor, client, stakeholders will initiate and officially start the project	96 (12x8) 1x Project Manager (Glassdoor, 2024) 1x Project Sponsor (Glassdoor, 2024) 10x Steering Committee	Project Manager = £26.98 x 1 Steering Committee = N/A Project Sponsor = £20.35 x 1	£378.64
Project Management Plan	Create project management plan	16 1x Project Manager (Glassdoor, 2024)	Project Manager = £26.98 x 1	£431.68
Financial Plan	Create Financial Plan	16 1x Project Manager (Glassdoor, 2024)	Project Manager = £26.98 x 1	£431.68
Resource Plan	Create Resource Plan	16 1x Project Manager (Glassdoor, 2024)	Project Manager = £26.98 x 1	£431.68
Quality Plan	Create Quality Plan	16 1x Project Manager (Glassdoor, 2024)	Project Manager = £26.98 x 1	£431.68
Risk Assessment	Find and assess risks associated with the project	16 1x Project Manager (Glassdoor, 2024)	Project Manager = £26.98 x 1	£431.68
Risk Management Plan	Create Risk Management Plan to mitigate risks associated with the project	16 1x Project Manager (Glassdoor, 2024)	Project Manager = £26.98 x 1	£431.68

Create Acceptance Plan	Assign the definitions of done and delivered.	16 1x Project Manager (Glassdoor, 2024)	Project Manager = £26.98 x 1	£431.68
Crete Procurement Plan	Find third party suppliers and agree to their terms and conditions	16 1x Project Manager (Glassdoor, 2024)	Project Manager = £26.98 x 1	£431.68
Project Vision and Team Leadership	Create vision of project success and set up team leadership.	56 (7x8) 1x Project Manager (Glassdoor, 2024) 1x Project Sponsor (Glassdoor, 2024) 2x Tech Leads (Glassdoor, 2024) 3x Team Leaders	Project Manager = £26.98 x 1 Project Sponsor = £20.35 x 1 Tech Lead = £41.19 x 2 = £82.39 Team Leader = £16.57 x 3 = £49.72	£1,435.52
Create Tasks	Define tasks for team members	48 (6x8) 1x Project Manager (Glassdoor, 2024) 3x Team Leaders (Glassdoor, 2024) 2x Tech Leads (Glassdoor, 2024)	Project Manager = £26.98 x 1 Team Leader = £16.57 x 3 = £49.72 Tech Lead = £41.19 x 2 = £82.39	£1,272.72
Brief Team Members	Brief team members on their tasks	48 (6x8) 1x Project Manager (Glassdoor, 2024) 2x Tech Leads (Glassdoor, 2024) 3x Team Leaders (Glassdoor, 2024)	Project Manager = £26.98 x 1 Team Leader = £16.57 x 3 = £49.72 Tech Lead = £41.19 x 2 = £82.39	£1,272.72
Plan and Design Software	Plan and design software including UML use case, class, ERD, and architecture diagrams, create	448 (28x16) 6x Software Designers (Glassdoor, 2024)	Software Designer = £28.41 x 6 = £170.45	£12,696.80

	wireframes and mock-ups of application	10x UI/UX Designers (Glassdoor, 2024) 12x Software Engineers (Glassdoor, 2024)	UI/UX Designer = $\text{£}26.52 \times 10 = \text{£}265.15$ Software Engineer = $\text{£}29.83 \times 12 = \text{£}357.95$	
Develop, Code and Debug Software	Write backend and frontend code for HRMS software, create databases, create user interfaces, debug software code, commit to Git repositories for version control and backup	3,760 (47x80) 13x Backend Programmers (Indeed, 2024) 13x Frontend Programmers (Indeed, 2024) 12x Software Engineers (Glassdoor, 2024) 2x Database Developers (PayScale, 2024) 4x DevOps Engineers (Glassdoor, 2024) 3x Cybersecurity Specialists (Glassdoor, 2024)	Backend Programmer = $\text{£}28.31 \times 13 = \text{£}368.03$ Frontend Programmer = $\text{£}24.84 \times 13 = \text{£}322.94$ Software Engineer = $\text{£}29.83 \times 12 = \text{£}357.95$ Database Developer = $\text{£}17.08 \times 2 = \text{£}34.17$ DevOps Engineer = $\text{£}29.36 \times 4 = \text{£}117.42$ Cybersecurity Specialist = $\text{£}28.41 \times 3 = \text{£}85.23$	£102,859.20
Build Software	Use compilers, containerisation platforms, cloud platforms, webhosting, convert code into executable software.	2,688 (42x64) 4x DevOps Engineers (Glassdoor, 2024) 13x Backend Programmers (Indeed, 2024) 13x Frontend Programmers (Indeed, 2024) 12x Software Engineers (Glassdoor, 2024)	DevOps Engineer = $\text{£}29.36 \times 4 = \text{£}117.42$ Backend Programmer = $\text{£}28.31 \times 13 = \text{£}368.03$ Frontend Programmer = $\text{£}24.84 \times 13 = \text{£}322.94$ Software Engineer = $\text{£}29.83 \times 12 = \text{£}357.95$	£74,645.76
Test Software	Perform automated and manual tests on software for bugs,	1,624 (29x56) 10x Testers (Payscale, 2024)	Software Tester = $\text{£}15.29 \times 10 = \text{£}152.93$	£39,957.68

	errors, defects, compliance, quality, performance, functionality, user interface/experience, usability, acceptance, integration, security, reliability, stability, scalability, code and design smells, technical debts, antipatterns and compatibility.	3x Cybersecurity specialists (Glassdoor, 2024) 12x Software Engineers (Glassdoor, 2024) 4x DevOps Engineers (Glassdoor, 2024)	Cybersecurity Specialist = $\text{£}28.41 \times 3 = \text{£}85.23$ Software Engineer = $\text{£}29.83 \times 12 = \text{£}357.95$ DevOps Engineer = $\text{£}29.36 \times 4 = \text{£}117.42$	
Deploy and Release Software	Deploy and release on appropriate platforms, depending on components: Docker for containerised components and web, as executable applications for Windows, macOS, Linux, iOS, Android, Render.com for web, AWS for cloud-based components and web, set up and use CI/CD pipelines	128 (16x8) 4x DevOps Engineers (Glassdoor, 2024) 12x Software Engineers (Glassdoor, 2024)	DevOps Engineer = $\text{£}29.36 \times 4 = \text{£}117.42$ Software Engineer = $\text{£}29.83 \times 12 = \text{£}357.95$	£3,802.96
Receive Client Feedback	Receive feedback from Engineering company, project sponsor, steering committee	1,792 (16x112) 1x Project Manager (Glassdoor, 2024) 3x Team Leaders (Glassdoor, 2024) 2x Tech Leads (Glassdoor, 2024) 10x Steering Committee	Project Manager = $\text{£}26.98 \times 1$ Team Leader = $\text{£}16.57 \times 3 = \text{£}49.72$ Tech Lead = $\text{£}41.19 \times 2 = \text{£}82.39$ Steering Committee = N/A	£17,818.08
Quality Assurance and Deliverables	Ensure that software quality is maintained through testing and feedback.	336 (42x8) 1x Project Manager (Glassdoor, 2024) 10x Testers (Payscale, 2024)	Project Manager = $\text{£}26.98 \times 1$ Software Tester = $\text{£}15.29 \times 10 = \text{£}152.93$ Team Leader = $\text{£}16.57 \times 3 = \text{£}49.72$	£6,299.12

		2x Tech Leads (Glassdoor, 2024) 3x Team Leaders (Glassdoor, 2024) 12x Software Engineers (Glassdoor, 2024) 4x DevOps Engineers (Glassdoor, 2024) 10x Steering Committee	Tech Lead = $\pounds 41.19 \times 2 = \pounds 82.39$ Software Engineer = $\pounds 29.83 \times 12 = \pounds 357.95$ DevOps Engineer = $\pounds 29.36 \times 4 = \pounds 117.42$ Steering Committee = N/A	
Communicate with Team Members and Stakeholders	Use communications plan to communicate with stakeholders and team members through appropriate channels.	1,904 (17x112) 1x Project Manager (Glassdoor, 2024) 3x Team Leader (Glassdoor, 2024) 2x Tech Leads (Glassdoor, 2024) 10x Steering Committee 1x Project Sponsor (Glassdoor, 2024)	Project Manager = $\pounds 26.98 \times 1$ Team Leader = $\pounds 16.57 \times 3 = \pounds 49.72$ Tech Lead = $\pounds 41.19 \times 2 = \pounds 82.39$ Steering Committee = N/A Project Sponsor = $\pounds 20.35 \times 1$	£20,097.25
IT System Administration	Administration and maintenance of IT systems and infrastructure for project	880 (5x176) 5x IT Administrators (Glassdoor, 2024)	IT Administrator = $\pounds 14.68 \times 5 = \pounds 75.39$	£13,268.64
Risk Management	Use the risk management plan to mitigate risks associated with the project	128 (4x32) 1x Project Manager (Glassdoor, 2024) 2x Tech Leads (Glassdoor, 2024) 1x Project Sponsor (Glassdoor, 2024)	Project Manager = $\pounds 26.98 \times 1$ Tech Lead = $\pounds 41.19 \times 2 = \pounds 82.39$ Project Sponsor = $\pounds 20.35 \times 1$	£4,151.04

Acceptance Management	Further user acceptance testing and ensure deliverables meet client requirements.	352 (11x32) 1x Project Manager (Glassdoor, 2024) 10x Steering Committee	Project Manager = £26.98 x 1 Steering Committee = N/A	£863.36
Cost Management	Manage costs to stay within the £700,000 budget, report to sponsor, manager, steering committee if costs exceed budget due to setbacks, unexpected expenses, and cost estimate miscalculations	192 (6x32) 1x Project Manager (Glassdoor, 2024) 5x Project Administrators (Glassdoor, 2024)	Project Manager = £26.98 x 1 Project Administrator = £14.68 x 5 = £73.39	£3,211.84
Quality Assurance	Quality assurance through monitoring software, project, and continued testing, apply software updates/patches to HRMS if needed.	1,344 (42x32) 1x Project Manager (Glassdoor, 2024) 10x Testers (Payscale, 2024) 2x Tech Leads (Glassdoor, 2024) 3x Team Leaders (Glassdoor, 2024) 12x Software Engineers (Glassdoor, 2024) 4x DevOps Engineers (Glassdoor, 2024) 10x Steering Committee	Project Manager = £26.98 x 1 Software Tester = £15.29 x 10 = £152.93 Tech Lead = £41.19 x 2 = £82.39 Team Leader = £16.57 x 3 = £49.72 Software Engineer = £29.83 x 12 = £357.95 DevOps Engineer = £29.36 x 4 = £117.42 Steering Committee = N/A	£25,196.48
Change Management	Make changes if project does not go according to plan or during a crisis.	352 (11x32) 10x Steering Committee 1x Project Sponsor (Glassdoor, 2024)	Steering Committee = N/A Project Sponsor = £20.35 x 1	£651.20
Repeat Agile Project Cycle	Repeat agile project lifecycle, SDLC, DevOps if needed.	Repeat if needed.		

		Up to 100 team members.		
Project Performance Analysis	Gather and analyse project performance metrics	136 (17x8) 1x Project Sponsor (Glassdoor, 2024) 5x Project Administrators (Glassdoor, 2024) 1x Project Manager (Glassdoor, 2024) 10x Steering Committee	Project Sponsor = £20.35 x 1 Project Administrator = £14.68 x 5 = £73.39 Project Manager = £26.98 x 1 Steering Committee = N/A	£965.76
Team Analysis	Analyse team performance metrics, team member motivation, accountability, communication, and feedback	88 (11x8) 1x Project Manager (Glassdoor, 2024) 2x Tech Leads (Glassdoor, 2024) 3x Team Leaders (Glassdoor, 2024) 5x Project Administrators (Glassdoor, 2024)	Project Manager = £26.98 x 1 Tech Lead = £41.19 x 2 = £82.39 Team Leader = £16.57 x 3 = £49.72 Project Administrator = £14.68 x 5 = £73.39	£998.07
Project Closure, documentation, handover, and signoff	Paperwork to bring project to an end, close supplier agreements, sign off contracts, hand over documentation and officially hand over project to client and close it.	136 (17x8) 10x Steering Committee 1x Project Sponsor (Glassdoor, 2024) 1x Project Manager (Glassdoor, 2024) 5x Project Administrators (Glassdoor, 2024)	Steering Committee = N/A Project Sponsor = £20.35 x 1 Project Manager = £26.98 x 1 Project Administrator = £14.68 x 5 = £73.39	£965.76
Evaluation and Lessons learnt	Formal analysis of project, lessons learned, successes and failures.	56 (7x8) 1x Project Sponsor	Project Sponsor = £20.35 x 1 Project Manager = £26.98 x 1	£965.76

		(Glassdoor, 2024) 1x Project Manager (Glassdoor, 2024) 5x Project Administrators (Glassdoor, 2024)	Project Administrator = £14.68 x 5 = £73.39	
LABOUR EXPENSE TOTAL				£338,001.16

Expected benefits and dis-benefits of the project

From a social and community perspective the HRMS system carries several benefits for the Engineering company, its customers, and employees:

- More efficient Human Resources department.
- Less stress for Human Resources employees as repetitive, tedious, and complex tasks are now automated.
- Fewer errors with employees' payrolls and salaries resulting in reduced financial stress at the engineering company and fewer employee disputes over pay resulting in strikes and legal action.
- Saves time for human resources employees, management and other employees through automation and streamlined management resulting in more productivity.
- A more productive engineering company can focus on creating better quality products for its customers resulting in better customer satisfaction.
- Improve project and team management for the engineering company
- Improved recruitment process
- Better job satisfaction and work motivation
- Increased productivity through improved automated time management.

Project Management Approaches

The project will have an agile project lifecycle methodology and a DevOps software development methodology. Agile project management is popular in the technology industry including Nexus Solutions because it works well for software development and its iterative nature means that it is adaptable to changing requirements and scope therefore allows for changes to be made and mistakes to be fixed quickly and easily compared to waterfall methodology (Westland, 2021).

The software development methodology will be DevSecOps that is DevOps that includes cybersecurity as it is important in Human Resources management due to processing sensitive data. DevOps/DevSecOps is an agile development methodology that combines the development, IT operations and cybersecurity teams to work together as one. DevSecOps uses automation tools such as CI/CD pipelines, artificial intelligence, and IT automation for time consuming repetitive and tedious tasks. DevSecOps also improves communication and collaboration between teams (Krohn, 2024) (Hall, 2024) (Microsoft, 2024).

DevSecOps advantages (Veritis, 2024) (Great Learning, 2024):

- Better Quality Assurance and Control of software products including threat detection
- Cybersecurity is included unlike DevOps and other methodologies
- Improved early detection of software vulnerabilities
- Faster development and deployment times
- Hand software over to engineering company more quickly
- Increased profits for Nexus Solutions
- Better customer service and satisfaction
- Easier collaboration between teams, team members, management, stakeholders, sponsor, and steering committee (Veritis, 2024) (Great Learning, 2024).

DevSecOps disadvantages (Veritis, 2024) (Great Learning, 2024):

- Shortage of DevOps/DevSecOps engineers
- Expensive to set up a DevSecOps environment
- Problems with automation, containerisation, cloud computing and CI/CD pipelines due to inexperience with DevSecOps
- Due to the speed of DevSecOps, some vulnerabilities are missed making the HRMS software vulnerable to cyberattacks, hackers and malware.
- DevSecOps intends to deploy the application as soon as possible therefore vulnerabilities may only be detected after deployment based on client feedback.
- DevSecOps methodology fails if communication breaks down by team members withholding critical information from other team members (Veritis, 2024) (Great Learning, 2024).

Conflict Resolution Strategies

During this project there is a likely risk of conflict between (approximately 100) team members which can result in:

- Reduced team morale and no motivation to work
- Tensions between team members, management, and stakeholders
- Arguments, altercations, confrontations, and disputes in the workplace between team members and management.
- Violations of code of conduct
- Paranoia and distrust in the team
- Strikes, protests, and industrial action
- Lack of productivity due to time wasted on arguments instead of getting tasks done
- Delays for project timeline and missing deadlines
- Poor management and decisions
- Resignation of team members
- Legal action and disputes
- Team members getting fired
- Office politics
- Social loafing.
- Harm to project's, team's, management's and Nexus Solutions' reputation and negative publicity
- Breakdown in essential communications – team members refusing to communicate, sending abusive messages, calls, and content to each other, cyberbullying, blocking, and ghosting each other.
- Bullying, harassment, and intimidation of team members.

Conflicts and disputes between team members are caused by (Abbas, 2022) (Cote, 2023):

- Different opinions, perceptions, views, and personalities (especially over contentious topics)
- Cultural, background, political and social differences between team members.
- Perceptions of discrimination, unfairness, feeling singled out or marginalised.
- Poor communication skills
- Misunderstanding and misinterpretation
- Biased team members and stakeholders and stereotyping
- Stress at work
- Bullying
- Competition between team members
- Office politics
- Poor leadership and management
- Fear of change
- Different working styles
- Limited resources (Abbas, 2022) (Cote, 2023)

It is therefore important to have conflict resolution strategies in place to avoid and resolve conflict to have a productive and motivated team, maintain Nexus Solutions reputation, deliver a good quality product, and have good client satisfactions and avoid negative consequences listed above. Different conflict resolution strategies will be used dependent on the conflict.

Conflict Resolution Strategies:

1. Avoidance – This is best for conflicts that occur outside of the project or work however avoidance is not recommended for causes of conflict within the project or workplace as not resolving these issues can have a detrimental impact on the team and the project as these issues can escalate unnoticed (Cote, 2023).
2. Competition – This involves placing a high importance on the project's goals and a low importance on team members and focuses on being assertive and not cooperative. The disadvantages are that it harms trust, creativity, productivity, and collaboration (Cote, 2023).
3. Accommodating – This is useful when the relationship between people is more important than the goals of the project for example conflict resolution between the project management at Nexus Solutions and the engineering company, steering committee, and the project sponsor. Poor relations between Nexus Solutions and clients could cause clients to choose a competitor software development company instead of us (Cote, 2023).
4. Compromising – resolving a conflict by making all conflicting parties forfeit achieving their full goals and is therefore a lose-lose method. Works best when you must maintain good relationships with stakeholders and team members but must not fully abandon project's goals (Cote, 2023).
5. Collaborating – This is usually the most suitable conflict resolution method for work and project related conflicts therefore will be the default resolution strategy (Cote, 2023).

As the project manager, I have the following responsibilities to prevent and resolve conflicts:

- Rights – Human and employee rights must be maintained for stakeholders: Equal pay, receive payslips, not be discriminated against, health and safety for a safe workplace, sick pay,

request flexible working, protection from unfair dismissal, maternity leave (Manak Solicitors, n.d.).

- Wellbeing – Ensure and safeguard team members’ physical, mental, and emotional wellbeing. Provide counselling, mentoring, first aid, external help and statutory sick pay if needed (Cote, 2023).
- Duties – I must behave in a legal, moral, ethical, and acceptable manner and obey the code of conduct. I must also ensure the team members are behaving in an acceptable manner and not engaging in wrongdoing (Cote, 2023).
- Fairness – I must ensure all team members are treated fairly (Cote, 2023).
- Best Practice – I must meet aspirational standards for the project and team members (Cote, 2023).

Risk Management Plan

Risk Register					
Risk Description	Probability	Impact	Risk Response	Risk Level	Risk Owner
Project over budget and unexpected costs	Likely	Major: Engineering company expected to pay extra costs, loss of profit for Nexus Solutions, financial disputes	Prioritise cost estimate and cost management, Use well trained personnel for cost estimates and management, use accurate cost estimation and management software. If cost estimate is likely to exceed budget, negotiate with the project sponsor and steering committee	Very High	Project Manager
1 month deadline missed and delays	Likely	Major: Dissatisfaction and disputes with client, steering committee, and project sponsor. Extra costs must be paid for.	Make time management a priority, employ multiple team members on time consuming tasks and project phases, make accurate time estimates, negotiate with project sponsor and steering committee if	Very High	Project Manager

			project is likely to exceed deadline		
Poor time management	Possible	Moderate: Project delayed, deadlines missed, extra costs	Make time management a priority, employ multiple team members on time consuming tasks and project phases, make accurate time estimates, negotiate with project sponsor and steering committee if project is likely to exceed deadline	High	Project Manager
Cyberattack on Nexus Solutions	Possible	Severe: Data loss, sensitive data exposed, intellectual property stolen, IT systems and infrastructure compromised / damaged, project delayed or cancelled	Install the latest cybersecurity software, antimalware, and firewalls on IT system, make sure software is up to date, encrypt data, disk drives and cloud storage, use strong passwords and 2-factor authentication, biometrics (fingerprint, facial recognition), back up data, advice from cybersecurity specialists	Very High	Nexus Solutions Cybersecurity Team
Cyberattack on HRMS software due to undetected vulnerability	Possible	Severe: Client's employees' data exposed, data loss, malware on clients IT systems, client's IT systems compromised, Lawsuit against	Hire cybersecurity specialists to make sure software is coded securely, use testing software to find vulnerabilities and exploits in code and refactor code as needed,	Very High	Cybersecurity Specialists

		Nexus Solutions, Nexus Solutions' reputation ruined	encrypt databases and passwords, use secure and trusted third party software, frameworks, SDKs and APIs, Encrypt connections between devices and software, Make sure HRMS has security features (authentication, user roles, secure code, encryption), make sure client's cybersecurity systems are up to standard, backup features in software, take out liability insurance.		
Damage to IT systems used in project	Possible	Severe: Data loss, expensive repairs to IT systems, Project delays, Higher insurance premiums, project cancellation.	Back up data, insurance for IT systems, make sure adequate cybersecurity measures are in place, keep IT infrastructure in well protected rooms (locks, CCTV, access cards, alarms, fireproofing, fire suppression, weatherproofing, air-conditioning), keep IT infrastructure and rooms well maintained, building, contents, and	Very High	Nexus Solutions

			equipment insurance.		
Emergency (Fire, flood, burglary) at Nexus Solutions	Rare	Severe: Destruction of Nexus Solutions offices and IT infrastructure, project cancelled, data loss.	Back up data, cybersecurity software installed, fireproofing, fire suppression, weatherproofing, flood defences, emergency procedures, disaster proofing, keep building and IT infrastructure rooms locked, under CCTV surveillance, install burglar alarms, use other security equipment, access control, hire security guards, health, and safety training, take out insurance policies	Medium	Nexus Solutions
Conflict between team members	Almost Certain	Moderate Low productivity, hostile workplace environment, bullying, harassment, team members resigning, strikes, industrial action, reduced morale	Use conflict resolution plan.	Very High	Project Manager, Steering Committee, Team Leader, Tech Lead, Team Members
Conflict within management (Manager, team leaders, tech leads, steering committee, sponsor)	Almost Certain	Major Poor management, communication breakdown, delays, financial	Use conflict resolution plan.	Very High	Project Manager, Steering Committee, Team Leader, Tech Lead

		mismanagem ent			
Conflict between Nexus Solutions and client	Possible	Major Legal action, project cancellation, refuse to pay for project, lawsuits	Use conflict resolution plan.	High	Project Manager, Steering Committee, Project Sponsor
Conflict between stakeholders	Almost Certain	Major: Legal action, project delays, project cancellation	Use conflict resolution plan.	Very High	Project Manager, Steering Committee, Project Sponsor
Accident at work resulting in property damage/destruction	Possible	Major: Damage must be paid for, data loss, delays and extra costs to project, reduced profit margins	Ensure health and safety procedures are followed, health and safety training, install relevant safety equipment, insurance for buildings, content and IT equipment, fireproofing, fire suppression, emergency protocols.	High	Nexus Solutions
Accident at work resulting in minor injury	Likely	Minor: Sick leave for affected team member, unsafe work environment, distrust, conflict, industrial action	Ensure health and safety procedures are followed, health and safety training, install relevant safety equipment, public and employee liability insurance with legal cover, content and IT equipment, fireproofing, fire suppression, emergency protocols. First-aid training and equipment,	Very High	Nexus Solutions

			hire first aiders, CCTV on premises for legal defence purposes. Report any health and safety issues and fix them as soon as possible		
Accident at work resulting in serious or life-changing injury	Unlikely	Severe: Legal action / lawsuit from affected team member, compensation must be paid, unsafe work environment, team members going on strike in fear of their safety, industrial action, bad publicity and media attention, serious conflict with stakeholders, delay and cancellation of project, workplace closed for health and safety investigation	Ensure health and safety procedures are followed, health and safety training, install relevant safety equipment, public and employee liability insurance with legal cover, content and IT equipment, fireproofing, fire suppression, emergency protocols. First-aid training and equipment, hire first aiders, CCTV on premises for legal defence purposes. Report any health and safety issues and fix them as soon as possible	High	Nexus Solutions
Accident at work resulting in death	Rare	Severe: Legal action / lawsuit from family of affected team member, compensation must be paid, unsafe work environment, team members going on strike in fear of their	Ensure health and safety procedures are followed, health and safety training, install relevant safety equipment, public and employee liability insurance with legal cover, content and IT	Medium	Nexus Solutions

		safety, industrial action, very bad publicity and media attention, serious conflict with stakeholders, delay and cancellation of project, workplace closed for health and safety investigation Civil and/or criminal lawsuit against Nexus solutions, resignation of team members	equipment, fireproofing, fire suppression, emergency protocols. Report any health and safety issues and fix them as soon as possible First-aid training and equipment, hire first aiders, CCTV on premises for legal defence purposes.		
Team members not working due to illness / sick leave	Almost Certain	Minor: Loss of productivity, Delays, deadlines missed, burden on other team members having to do their work increasing stress levels,	Employ enough team members to cover the work for someone off sick, negotiate with steering committee and project sponsor if project is delayed due to sickness.	High	Team Members
Theft of company property	Possible	Moderate: Financial loss, asset loss, data loss, breach of data protection, security threat, delays, missed deadlines	Back up data, Adequate security measures in place, locked doors, buildings, rooms for valuable and critical IT equipment, access control to premises, CCTV recording in operation, use	High	Nexus Solutions Security

			burglar alarms, smart water, smoke cloaks, bulletproof glass, and other security equipment, hire security guards, building, content, and IT equipment insurance, report all incidents to police, background checks for team members		
Vandalism of company property	Possible	Moderate: Financial loss, asset loss, data loss, breach of data protection, security threat, delays, missed deadlines	Back up data, Adequate security measures in place, locked doors, buildings, rooms for valuable and critical IT equipment, access control to premises, CCTV recording in operation, use burglar alarms, smart water, smoke cloaks, bulletproof glass, and other security equipment, hire security guards, building, content, and IT equipment insurance, report all incidents to police, background checks for team members	High	Nexus Solutions Security
Data loss	Possible	Severe: Loss of valuable work on project including code,	Back up data, disaster proofing, data encryption with recovery keys, use reliable	Very High	Project Manager

		designs, software, documentation, paperwork, databases.	hardware and software, Git version control, cybersecurity software, keep systems updated, Identity and access management		
Lawsuit against Nexus Solutions	Unlikely	Severe: Company reputation damaged, financial loss, negative publicity, civil and criminal convictions against company, assets seized, extra stress for team members and management, bankruptcy	Insurance with legal cover, Customer, employee, and public liability insurance, hire own (Nexus Solutions) defence legal team (solicitors), make sure agreements, terms of service and licenses are clear, make sure not to violate licenses and terms of service of contractors and third-party software, hardware and services, conflict resolution plan.	High	Nexus Solutions Legal Team
Wrongdoing by team members and stakeholders	Possible	Major: Loss of morale with team members, distrust, team members being dismissed, damaged reputation, lawsuits and legal action, conflict between team members and stakeholders, poor quality	Verbal warning, written warning then disciplinary action of team members engaged in wrongdoing, serious and repeated incidents can result in dismissal, legal action, reported to authorities. Follow conflict resolution plan.	High	Steering Committee

		product, loss of productivity			
Scope Creep	Possible	Moderate: Time wasted, delays and missed deadlines, project goes overbudget, more stress on pressure on team members to meet deadlines with extra work, wasted resources, greater risk of bugs, defects, and maintainability due to overcomplexity		High	Steering Committee, Project Manager, Project Sponsor
Poor project management	Possible	Major: Delays, missed deadlines, resource shortages and waste, lower team morale, lack of motivation, strikes and industrial action, conflicts, project over budget, poor quality product	Use proper project management techniques, use project management software, Gantt charts, kanban charts, work breakdown structures, use transformative project management when possible, conflict resolution plan, use agile methodology, employ project administrators to help with project management and administration, use performance metrics	High	Project Manager

Issues with code, design, bugs, and defects after handover to engineering company	Almost Certain	Major: Poor quality product, conflict with client, unusable product, cybersecurity threats, unreliable product, dissatisfied client, lawsuit by client, delays and missed deadlines due to time wasted fixing the problems.	Use quality assurance and quality control and test software to make sure it is to a high standard, hire software testers, use automated and manual testing	Very High	Tech Leads, Technical Team Members
Public Liability	Unlikely	Severe: Legal action from members of the public	Public liability insurance	High	Nexus Solutions Legal Team
Employee Liability	Possible	Severe: Legal action from team members	Employee liability insurance	Very High	Nexus Solutions Legal Team
Customer Liability	Possible	Severe: Legal action from client	Customer liability insurance	Very High	Nexus Solutions Legal Team
Low productivity from team members	Likely	Moderate Delays, missed deadlines, conflict, increased costs due to more labour time, low quality product, low morale	Use transformative management, agile and DevSecOps methodologies, collaborative conflict resolution to boost productivity, morale, and motivation, investigate why team members have low productivity and resolve any problems causing low productivity,	High	Project Manager, Team Leaders, Tech Leads

			discipline those who are persistently and deliberately not being productive, in a worst-case scenario, dismiss and replace them.		
Client changes to competitor	Possible	Severe: Project failure as project is no longer needed, loss of earnings due to cancellation, low morale due to disappointed team members, waste of time, money, and resources	Price the project competitively to other companies, make sure Nexus Solutions provides the best quality software and best value for money and customer service compared to competitors.	Very High	Project Sponsor
Client cancels project	Unlikely	Severe: Project failure as project is no longer needed, loss of earnings due to cancellation, low morale due to disappointed team members, waste of time, money, and resources	Try to encourage the client to continue funding the project by reminding them of the benefits of the project.	High	Project Sponsor
Sponsor refuses to pay for project/financial dispute	Unlikely	Severe: Debt is incurred with Engineering company and its sponsor, Nexus Solutions in debt to third party	Financial dispute – use conflict resolution strategies. Refusal to pay for project – 1. Give project sponsor written warning to pay. 2. Refer debts to debt	High	Project Sponsor, Nexus Solutions Legal Team

		contractors, creditors and team members, loss of revenue and unable to pay off debts, risk of bankruptcy, legal action, conflict	collection agencies. 3. Take project sponsor / client to court to pursue bailiff actions. Make sponsor / client sign contract that legally binds them to pay for the project. Provide an accurate cost estimate and manage costs properly to reduce the likelihood of this.		
Team members resigning	Possible	Major: Fewer team members working on project, more workload on other team members increasing stress and pressure, difficulty recruiting new specialised team members, delays and missed deadlines	Use conflict resolution strategies, make sure team members are paid correctly, ensure health and safety standards are met, use good project management methodologies (agile, DevOps, transformative, collaborative), avoid hostile or toxic work environment.	High	Project Manager, Steering Committee, Team Members
Unauthorised absence by team members	Likely	Moderate Greater workload on fewer team members increasing stress and pressure for them, conflict, delays, missed deadlines, difficulty recruiting new	Include in contract that unauthorised absences are not allowed except in an emergency, warn and discipline team members for unauthorised absences	High	Project Manager, Team Leaders, Team Members

		team members, conflict			
Dissatisfaction with final product	Possible	Moderate: Dissatisfied client, Dissatisfied customer, conflict with client and stakeholders, legal action / lawsuit from client demanding a refund, compensation, paying damages or to rework on the project to fix its problems. Sponsor wants their money back.	Use quality assurance and control, make sure software is thoroughly tested, maintain communications with and receive feedback from client, improve software based on test results and feedback, patch software. Provide customer service and technical support to client.	High	Steering Committee, Project Manager, Tech Leads
Inaccurate estimations	Likely	Moderate: Project is over budget; project takes longer than one month deadline	Negotiate with steering committee, project sponsors, tech leads, team leaders, project administrators and experts for more accurate estimations. Use estimation software for more accurate results.	High	Project Manager, Project Administrators
Lack of engagement by team members and stakeholders	Likely	Minor: Lack of motivation, reduced morale, increased burden, stress and pressure on other workers, delays and missed	Use communications plan to ensure all team members and stakeholders are communicating properly and using the right channels. Ensure agile, DevOps, transformative	High	Steering Committee, Project Sponsor, Project Manager, Team Leaders, Tech Leads, Team Members, Stakeholders

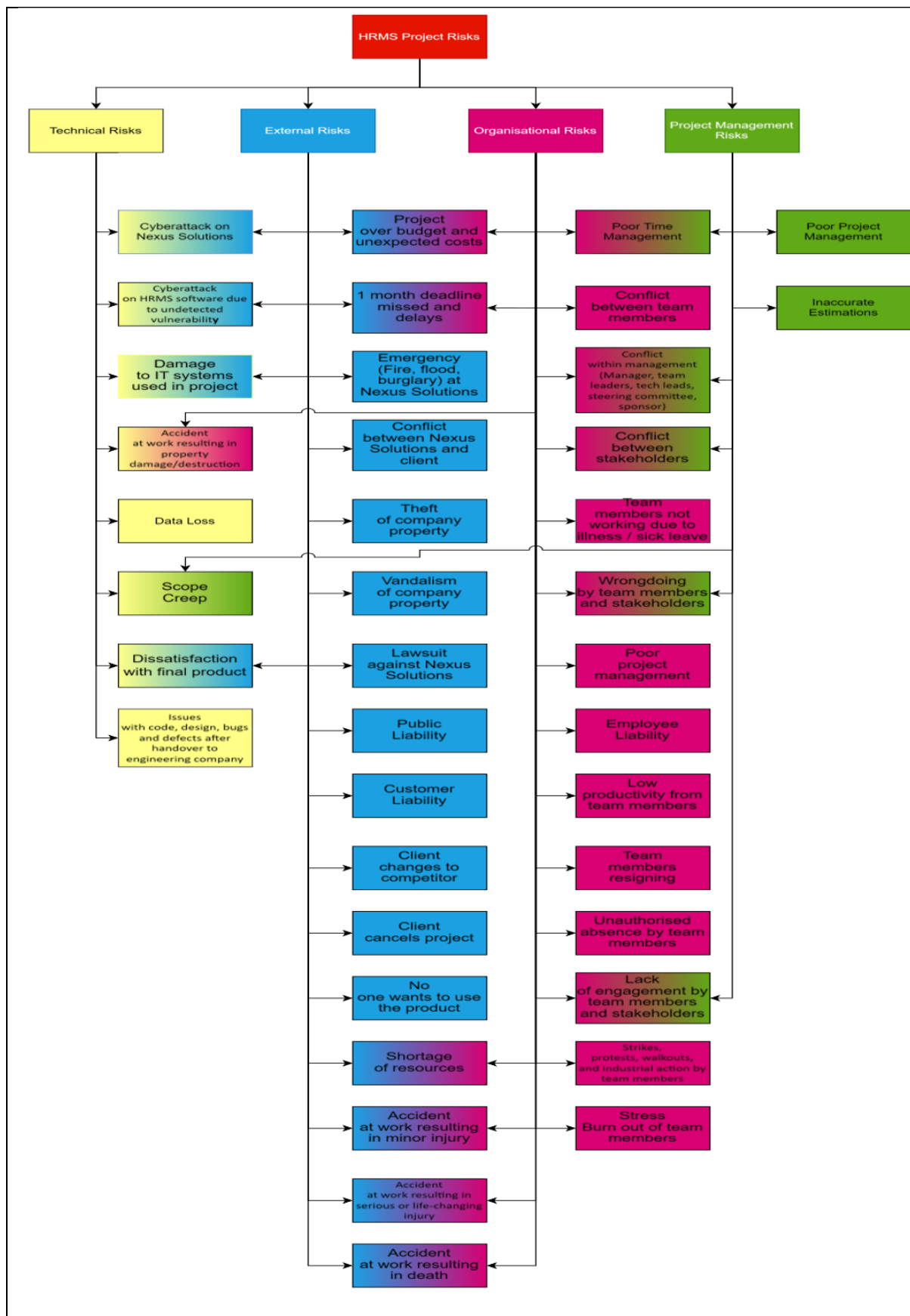
		deadlines, conflict.	management and collaborative conflict resolution are in place to improve motivation, morale and avoid social loafing. Discipline problem team members deliberately not engaging in project.		
No one wants to use the product	Rare	Severe: Project is a failure, no profit, financial loss on project, damaged reputation, time, money, and resources wasted.	Make sure the project is feasible (feasibility study), use quality assurance and control to ensure high software project, cost management to keep project within budget.	Medium	Steering Committee
Funding for project cut	Possible	Severe: Project is cancelled, lower quality product, debts incurred by Nexus Solutions, due to being unable to pay contractors, team members, creditors, client/sponsor debt (owes money to Nexus Solutions) depending on circumstances, financial hardship, loss of revenue.	Have accurate project cost estimates, manage costs to keep project within budget, avoid scope creep and overengineering and wasting resources to avoid extra costs, negotiate with project sponsor and steering committee if unavoidable extra costs causes the project to exceed the budget.	Very High	Project Sponsor
Shortage of resources	Possible	Major:	Manage resources, avoid	High	Project Manager,

		Delays to project and missed deadlines, going over budget, additional expenses, conflict, unable to complete parts of the project,	scope creep that wastes resources, negotiate with, or change supplier due to resource shortages, negotiate with steering committee and project sponsor if resource shortages result in delays		Project Administrator s, Steering Committee
Strikes, protests, walkouts, and industrial action by team members	Unlikely	Severe: Project cancellation, delays, missed deadlines, conflict, legal action, lawsuits, negative publicity on media and social media, damaged reputation, additional costs, disruption to project, team members refuse to work on project, property damage, contracts voided	Use conflict resolution strategies, make sure all team members are paid fairly, ensure health and safety standards are met, use good management techniques such as transformative and agile and avoid bad management techniques such as micromanagement, avoid overworking team members, avoid hostile and toxic work environment, make sure team members are comfortable, act against wrongdoing, ensure human and worker rights are not violated, make sure project and work environment are ethical	High	Project Manager, Team Leaders, Tech Leads, Steering Committee

Stress Burn out of team members	Possible	Severe: Serious impact to mental health, emotional wellbeing, physical health resulting in sick leave, resignations, and possible lawsuits	Make sure team members health and wellbeing are looked after, conflict resolution strategies, hire tech leads to balance workload on team members, avoid overworking team members, avoid hostile or toxic workplace, health, and safety measures.	Very High	Project Manager
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Risk Breakdown Structure

I have created a risk breakdown structure, which is a hierarchical tree diagram that helps you identify risk categories and the structure of project risks in order of importance. Also available at: <https://managing-projects-and-teams-diagrams.onrender.com/riskbreakdownstructure>



Risk Matrix						
Risk matrix to analyse the likelihood and the impact to the project of each risk so they can be prioritized.						
Risk Matrix		Severity				
		Insignificant	Minor	Moderate	Major	Severe
Likelihood	Almost Certain	Medium	High	Very High	Very High	Very High
	Likely	Medium	High	High	Very High	Very High
	Possible	Low	Medium	High	High	Very High
	Unlikely	Low	Low	Medium	Medium	High
	Rare	Low	Low	Low	Low	Medium

Five most significant risks affecting this project.

The five highest risks associated with project are:

1. Project over budget and unexpected costs resulting in the Engineering company expected to pay extra costs and loss of profit for Nexus Solutions. This will likely result in financial disputes between stakeholders.
2. 1 month deadline missed and delays resulting in dissatisfaction and disputes with the client, steering committee, and project sponsor. Extra costs must be paid for.
3. Issues with code, design, bugs, and defects after handover to engineering company
 - a. .
4. Data loss resulting in loss of valuable work on project including code, designs, software, documentation, paperwork, and databases.

How these five risks will be managed

The following above-mentioned risks will be managed by:

1. Project over budget and unexpected costs – Prioritise cost estimate and cost management, use well trained personnel for cost estimates and management, use accurate cost estimation and management software. If cost estimate is likely to exceed budget, negotiate with the project sponsor and steering committee.
2. 1 month deadline missed and delays – Make time management a priority, employ multiple team members on time consuming tasks and project phases, make accurate time estimates, negotiate with project sponsor and steering committee if project is likely to exceed deadline
3. Issues with code, design, bugs, and defects after handover to engineering company – Use quality assurance and quality control and test software to make sure it is to a high standard, hire software testers, use automated and manual testing.
4. Data loss – Back up data, disaster proofing, data encryption with recovery keys, use reliable hardware and software, Git version control, cybersecurity software, keep systems updated, Identity and access management.
5. Conflict between team members – Use conflict resolution plan.

Communication Plan

Description	Frequency	Channel/Medium	Audience	Owner
Project Kick-off Meeting, Define Scope, Initiation Phase, cost estimate, feasibility study	Start of Project	In Person Meeting, possibly others joining on Zoom or MS Teams, Project Charter	All project and team members, Stakeholders, Clients, Project Manager, Tech Lead, Team Leader	Stakeholders, Nexus Solutions, Engineering company? Project Sponsor
Collaboration between project and team members, clients, stakeholders	Daily, Constant	In person, Face-to Face, Zoom, MS Teams, Slack, Email, Phone	Project and Team Members, Project Manager, Tech Lead, Team Leader	
Updates and contact with stakeholders	As needed	In person, Face-to Face, Zoom, MS Teams, Slack, Email, Phone	Project Manager, Tech Lead, Stakeholders	Project Sponsor
Project Meetings	Weekly or more frequently	In person or online	Project and team members	
SCRUM Meetings	Weekly	Hybrid – In person or online	Developers, SCRUM Master, Tech Lead, Project Manager, DevSecOps team	
Daily Scrum	Daily	In person or online	Developers, SCRUM Master, Tech Lead, DevSecOps team	
Project Planning	Start of Project / Planning phase	In person or remote, Gantt Chart, resource plan, risk management plan, quality plan, acceptance plan	All project and team members, Project Manager, Tech Lead, Team Leader, stakeholders, clients?	
Project Execution Meeting	Start of execution phase	In person or remote, set up other communication methods, team, task, and project management systems	All project and team members, Project Manager, Tech Lead, Team Leader, stakeholders	
Project Monitoring and Control meetings	Start of and during monitoring and controlling phase.	In person or remote	All project and team members, Project Manager, Tech Lead, Team	

			Leader, stakeholders	
Post project review meeting (closure phase), project evaluation	End of project	In person or remote	All project and team members, Project Manager, Tech Lead, Team Leader, stakeholders, clients	
Milestones and deliverables	As required	In person or remote	All project and team members, Project Manager, Tech Lead, Team Leader	
Project Check Ins	Daily	Slack	Project and team members	
Project Handover (documents ending project, due payments, lessons learnt)	End of project	In person, Email and Post	Steering Committee, Project Sponsor, Project Manager, Team Leaders, Tech Leads, Project Administrators	

Conclusion

In conclusion, I consider that the HRMS will significantly improve the Human Resources department at the Engineering Company. This will resolve the engineering company's quality of service and compliance issues, speed up and automate several HR processes making the Human Resources management process more convenient, faster, and reliable. Regarding the management process, I have concluded that the agile project management methodology is the best for this project due to its speed, agility and adaptability allowing changes to be made based on feedback from client, software testers and team members. It is easier to fix mistakes, design, and technical flaws in agile project management. For the software development methodology, I have chosen DevSecOps due to prioritising security, rapid development and deployment, improved collaboration and communication, continuous integration and development and increased efficiency and productivity. For the team management approach, I have chosen transformational leadership as the main leadership approach because as it leads to better innovation, performance, productivity, wellbeing and sense of empowerment and boosts team morale and will likely reduce the risk of conflict happening.

References

Cybersecurity Guide Contributors (2024). *Cybersecurity specialist careers: Your essential roadmap*. Available at: <https://cybersecurityguide.org/careers/security-specialist/> (Accessed: 11 06 2024).

Abbas, T. (2022) *10 Common Causes of Conflict at Workplace*.

Available at: <https://changemanagementinsight.com/cause-of-conflict-at-workplace/>
(Accessed: 13 06 2024).

Adobe (2024) *Creative Cloud All Apps*.

Available at:

<https://commerce.adobe.com/store/email?items%5B0%5D%5Bid%5D=F5CC79C275F8FBD6A438185A6CEB3C38&cli=creative&co=GB&lang=en>

(Accessed: 12 06 2024).

Amazon (2024) *AWS Pricing Calculator (N.B. estimate has since reset back to zero. Estimate available in appendix)*.

Available at: <https://calculator.aws/#/estimate>

(Accessed: 12 06 2024).

Apple (2024) *Choosing a Membership*.

Available at: <https://developer.apple.com/support/compare-memberships/>

(Accessed: 12 06 2024).

Aston, B. (2024) *What Is The Project Life Cycle: The 5 Phases Explained*.

Available at: <https://thedigitalprojectmanager.com/projects/pm-methodology/project-management-life-cycle/>

(Accessed: 07 06 2024).

Atlassian (2024) *Simple, transparent pricing for every team..*

Available at: <https://www.atlassian.com/software/jira/pricing>

(Accessed: 12 06 2024).

Atlassian (2024) *Trello your way..*

Available at: <https://trello.com/en/pricing>

(Accessed: 12 06 2024).

Chin, K. (2023) *List of Cybersecurity Laws and Regulations in the UK*.

Available at: <https://www.upguard.com/blog/cybersecurity-laws-regulations-uk>

(Accessed: 07 06 2024).

Cote, C. (2023) *5 Strategies for Conflict Resolution in the Workplace*.

Available at: <https://online.hbs.edu/blog/post/strategies-for-conflict-resolution-in-the-workplace>

(Accessed: 13 06 2024).

Coursera (2024) *UI vs. UX Design: What's the Difference?*.

Available at: <https://www.coursera.org/articles/ui-vs-ux-design>

(Accessed: 11 06 2024).

Coursera (2024) *What Does a Back-End Developer Do?*.

Available at: <https://www.coursera.org/articles/back-end-developer>

(Accessed: 11 06 2024).

Coursera (2024) *What Does a Front-End Developer Do?*.

Available at: <https://www.coursera.org/articles/front-end-developer>

(Accessed: 11 06 2024).

Coursera (2024) *What Does a Software Engineer Do?*.

Available at: <https://www.coursera.org/articles/software-engineer>
(Accessed: 11 06 2024).

Coursera (2024) *What Is a Project Manager? A Career Guide*.

Available at: <https://www.coursera.org/articles/what-is-project-manager>
(Accessed: 11 06 2024).

Docker (2024) *Docker Core Subscriptions*.

Available at: <https://www.docker.com/pricing/>
(Accessed: 12 06 2024).

Donato, H. (2024) *How to Measure the Success of a Project: 5 Steps (+ Examples)*.

Available at: <https://project-management.com/6-ways-of-measuring-project-success/>
(Accessed: 07 06 2024).

Full Scale, 2024. *What Does a Tech Lead Do?*. (Online)

Available at: <https://fullscale.io/blog/what-does-a-tech-lead-do/>
(Accessed: 11 06 2024).

GitHub (2024) *Get the complete developer platform..*

Available at: <https://github.com/pricing>
(Accessed: 12 06 2024).

Glassdoor (2024) *Cyber Security Engineer Salaries in United Kingdom*.

Available at: https://www.glassdoor.co.uk/Salaries/cyber-security-engineer-salary-SRCH_KO0,23.htm
(Accessed: 12 06 2024).

Glassdoor (2024) *Devops Engineer Salaries in United Kingdom*.

Available at: https://www.glassdoor.co.uk/Salaries/devops-engineer-salary-SRCH_KO0,15.htm
(Accessed: 13 06 2024).

Glassdoor (2024) *IT-Administrator Salaries in United Kingdom*.

Available at: https://www.glassdoor.co.uk/Salaries/it-administrator-salary-SRCH_KO0,16.htm
(Accessed: 13 06 2024).

Glassdoor (2024) *Project Administrator Salaries in United Kingdom*.

Available at: https://www.glassdoor.co.uk/Salaries/project-administrator-salary-SRCH_KO0,21.htm
(Accessed: 13 06 2024).

Glassdoor (2024) *Project Manager Salaries in United Kingdom*.

Available at: https://www.glassdoor.co.uk/Salaries/project-manager-salary-SRCH_KO0,15.htm
(Accessed: 13 06 2024).

Glassdoor (2024) *Project Sponsor Salaries in United Kingdom*.

Available at: https://www.glassdoor.co.uk/Salaries/project-sponsor-salary-SRCH_KO0,15.htm
(Accessed: 13 06 2024).

Glassdoor (2024) *Software Designer Salaries in United Kingdom*.

Available at: https://www.glassdoor.co.uk/Salaries/software-designer-salary-SRCH_KO0,17.htm
(Accessed: 13 06 2024).

Glassdoor (2024) *Software Engineer Salaries in United Kingdom*.

Available at: https://www.glassdoor.co.uk/Salaries/software-engineer-salary-SRCH_KO0,17.htm
(Accessed: 12 06 2024).

Glassdoor (2024) *Team Leader Salaries in United Kingdom*.

Available at: https://www.glassdoor.co.uk/Salaries/team-leader-salary-SRCH_KO0,11.htm
(Accessed: 13 06 2024).

Glassdoor (2024) *Tech Lead Salaries in United Kingdom*.

Available at: https://www.glassdoor.co.uk/Salaries/tech-lead-salary-SRCH_KO0,9.htm
(Accessed: 13 06 2024).

Glassdoor (2024) *UI Designer Salaries in United Kingdom*.

Available at: https://www.glassdoor.co.uk/Salaries/ui-designer-salary-SRCH_KO0,11.htm
(Accessed: 13 06 2024).

Good, L. (2023) *Agile vs Waterfall Methodology: Differences & How To Choose*.

Available at: <https://project-management.com/agile-vs-waterfall/>
(Accessed: 10 06 2024).

Great Learning, (2024) *DevOps Advantages and Disadvantages*.

Available at: <https://www.mygreatlearning.com/devops/tutorials/devops-advantages-and-disadvantages>
(Accessed: 13 06 2024).

Hall, T. (2024) *DevOps vs. Agile*.

Available at: <https://www.atlassian.com/devops/what-is-devops/agile-vs-devops>
(Accessed: 24 06 2024).

Hall, T. (2024) *What is a DevOps engineer?*.

Available at: <https://www.atlassian.com/devops/what-is-devops/devops-engineer>
(Accessed: 11 06 2024).

Herrity, J. (2023) *5 Roles and Responsibilities of a Team Leader*.

Available at: <https://www.indeed.com/career-advice/career-development/responsibilities-of-a-team-leader>
(Accessed: 11 06 2024).

Herrity, J. (2023) *8 Types of Management Styles for Effective Leadership*.

Available at: <https://www.indeed.com/career-advice/career-development/management-styles>
(Accessed: 10 06 2024).

Herrity, J. (2023) *Micromanagement: Definition and How To Respond to It*.

Available at: <https://www.indeed.com/career-advice/career-development/micromanagement>
(Accessed: 12 06 2024).

Indeed (2022) *How To Become a Software Designer (Plus Salary Info)*.

Available at: <https://www.indeed.com/career-advice/finding-a-job/how-to-become-software-designer>
(Accessed: 11 06 2024).

Indeed (2023) *How to become a database developer (with duties and skills)*.

Available at: <https://uk.indeed.com/career-advice/finding-a-job/how-to-become-database-developer>
(Accessed: 11 06 2024).

Indeed (2023) *What Are IT Administrators? (Plus How To Become One)*.

Available at: <https://www.indeed.com/career-advice/finding-a-job/what-are-it-administrators>
(Accessed: 11 06 2024).

Indeed (2023) *What Does a Project Administrator Do? (Plus Skills)*.

Available at: <https://www.indeed.com/career-advice/finding-a-job/what-does-project-administrator-do>
(Accessed: 11 06 2024).

Indeed (2023) *What Does a Project Administrator Do? (Plus Skills)*.

Available at: <https://www.indeed.com/career-advice/finding-a-job/what-does-project-administrator-do>
(Accessed: 13 06 2024).

Indeed (2024) *Back end developer salary in United Kingdom*. (Online)

Available at: <https://uk.indeed.com/career/back-end-developer/salaries>
(Accessed: 12 06 2024).

Indeed (2024) *Front end developer salary in United Kingdom*.

Available at: <https://uk.indeed.com/career/front-end-developer/salaries>
(Accessed: 12 06 2024).

Indeed (2024) *What Is an IT Consultant?*.

Available at: <https://uk.indeed.com/career-advice/finding-a-job/what-is-an-it-consultant>
(Accessed: 11 06 2024).

ISACA (2024) *What is CMMI?*.

Available at: <https://cmmiinstitute.com/cmmi/intro>
(Accessed: 12 06 2024).

ISO (n.d.) *ISO 9000 family*.

Available at: <https://www.iso.org/standards/popular/iso-9000-family>
(Accessed: 12 06 2024).

JetBrains (2024) *Subscription Options and Pricing*.

Available at: <https://www.jetbrains.com/pycharm/buy/?section=commercial&billing=yearly>
(Accessed: 12 06 2024).

Krohn, R. (2024) *DevOps*.

Available at: <https://www.atlassian.com/devops>
(Accessed: 13 06 2024).

Malsam, W. (2022) *Steering Committee: Definition, Roles & Meeting Tips*.

Available at: <https://www.projectmanager.com/blog/steering-committee-definition>
(Accessed: 11 06 2024).

Malsam, W. (2023) *What Is a Project Sponsor? Roles & Responsibilities*.

Available at: <https://www.projectmanager.com/blog/what-is-a-project-sponsor>
(Accessed: 11 06 2024).

Manak Solicitors (n.d.) *10 Employee Rights*.

Available at: <https://manaksolicitors.co.uk/services/employment-law/ten-employee-rights-you-should-know/>

(Accessed: 14 06 2024).

Meta (2024) *Pricing to fit every conversation*.

Available at: [https://business.whatsapp.com/products/platform-pricing?country=United%20Kingdom¤cy=Pound%20Sterling%20\(GBP\)](https://business.whatsapp.com/products/platform-pricing?country=United%20Kingdom¤cy=Pound%20Sterling%20(GBP))

(Accessed: 12 06 2024).

Microsoft, (2024) *Buy Visual Studio*.

Available at: <https://visualstudio.microsoft.com/vs/pricing/?tab=Enterprise>

(Accessed: 12 06 2024).

Microsoft (2024) *Compare work management offerings*.

Available at: <https://www.microsoft.com/en-gb/microsoft-365/planner/microsoft-planner-plans-and-pricing#x584742a0a48842c681109a8f28774e0c>

(Accessed: 12 06 2024).

Microsoft (2024) *Find the right Microsoft Teams for your needs*.

Available at: <https://www.microsoft.com/en-gb/microsoft-teams/compare-microsoft-teams-business-options>

(Accessed: 12 06 2024).

Microsoft (2024) *What is DevSecOps?*.

Available at: <https://www.microsoft.com/en-us/security/business/security-101/what-is-devsecops>

(Accessed: 13 06 2024).

Miranda, D. (2024) *10 Management Styles Of Effective Leaders*.

Available at: <https://www.forbes.com/advisor/business/management-styles/>

(Accessed: 10 06 2024).

Olic, A. (2017) *Advantages and Disadvantages of Agile Project Management [Checklist]*.

Available at: <https://activecollab.com/blog/project-management/agile-project-management-advantages-disadvantages>

(Accessed: 10 06 2024).

Oracle, (2024) *MySQL Enterprise Edition Subscription (On-Premises, 5+ socket server)*.

Available at:

https://shop.oracle.com/apex/f?p=DSTORE:6:::6:P6_LPI,P6_PROD_HIER_ID:60722111181080530642694,58095029061520477171389

(Accessed: 12 06 2024).

PayScale (2024) *Average Database Developer Salary in United Kingdom*.

Available at: https://www.payscale.com/research/UK/Job=Database_Developer/Salary

(Accessed: 13 06 2024).

Payscale, (2024) *Average Information Technology (IT) Consultant Salary in United Kingdom*.

Available at:

[https://www.payscale.com/research/UK/Job=Information_Technology_\(IT\)_Consultant/Salary](https://www.payscale.com/research/UK/Job=Information_Technology_(IT)_Consultant/Salary)

(Accessed: 13 06 2024).

Payscale, (2024) *Average Software Tester Salary in United Kingdom*.

Available at: https://www.payscale.com/research/UK/Job=Software_Tester/Salary
(Accessed: 13 06 2024).

Postman, 2024. *Postman API Platform plans and pricing*.

Available at: <https://www.postman.com/pricing/>
(Accessed: 12 06 2024).

Render.com (2024) *Predictable pricing that scales with you*.

Available at: <https://render.com/pricing#plans>
(Accessed: 12 06 2024).

Slack (2024) *Choose the plan that's right for your team*. (Online)

Available at: <https://app.slack.com/plans/T062END8NTB>
(Accessed: 12 06 2024).

Smartsheet (2024) *Pricing*.

Available at: <https://www.smartsheet.com/pricing>
(Accessed: 12 06 2024).

Sonar (2024) *Get clean, reliable, and secure code with SonarQube*.

Available at: <https://www.sonarsource.com/plans-and-pricing/>
(Accessed: 12 06 2024).

StarUML (2024) *Buy*.

Available at: <https://staruml.io/buy/>
(Accessed: 12 06 2024).

Stellini, D (2023) *What is gold plating, and how to avoid it*.

Available at: <https://allfront.io/blog/what-is-gold-plating-and-how-to-avoid-it/>
(Accessed: 07 06 2024).

Teal Labs, Inc. (2024) *What is a Software Tester?*. (Online)

Available at: <https://www.tealhq.com/career-paths/software-tester>
(Accessed: 11 06 2024).

Testsigma (n.d.) *QA Process: A Complete Guide to QA Stages, Steps, & Tools*.

Available at: <https://testsigma.com/guides/qa-process/>
(Accessed: 12 06 2024).

University of Southampton, (n.d.) *Authority, Accountability, Responsibility: What Do They Mean?*.

Available at: <https://100daytoolkit.soton.ac.uk/PDFGoodPracticeResources/authority-accountability-responsibility-what-do-they-mean.pdf>
(Accessed: 12 06 2024).

Veritis (2024) *Pros and Cons of DevSecOps*.

Available at: <https://www.veritis.com/blog/pros-and-cons-of-devsecops/>
(Accessed: 13 06 2024).

Westland, J. (2021) *Top 10 Project Management Methodologies: An Overview*.

Available at: <https://www.projectmanager.com/blog/project-management-methodology>
(Accessed: 12 06 2024).

Westland, J. (2022) *The Quality Assurance Process: Roles, Methods & Tools*.

Available at: <https://www.projectmanager.com/blog/quality-assurance-and-testing>
(Accessed: 12 06 2024).

Zoom (2024) *Plans & Pricing for Business*.

Available at: <https://zoom.us/pricing>
(Accessed: 12 06 2024).

Appendix

Link to Git repository containing Project and Team Management documents:

https://github.com/AlexanderJohnRobertson/Managing_Projects_And_Teams.git

Project Charter

PROJECT NAME		PROJECT MANAGER	PROJECT SPONSOR
Human Resource Management System (HRMS) Software		S275931	Engineering Company
EMAIL	PHONE	ORGANIZATIONAL UNIT	
s275931@nexussolutions.com	12345 678901	Nexus Solutions	
ESTIMATED COSTS	EXPECTED SAVINGS	EXPECTED START DATE	EXPECTED COMPLETION
£700,000	£0	01/03/2024	01/04/2024

PROJECT OVERVIEW

PROBLEM OR ISSUE	Engineering company has 200 employees at three sites uses an outdated manual Human Resources Management System facing compliance and quality of service issues.
PURPOSE OF PROJECT	To build a modernised automated Human Resources Management System (HRMS) to replace the outdated manual system with the following automated functions: HR administration, payroll, recruitment, employee data, recruitment and application tracking, time and attendance management, payroll processing, salaries, performance, and benefits tracking, training and development and potentially other features, and to fix the quality-of-service issues and compliance issues.
BUSINESS CASE	Build an automated HRMS system (see above) to address the engineering company's efficiency, quality of service and compliance issues in their Human Resources department with their current system.
GOALS / METRICS	Produce an HRMS system for an engineering company within one month at a budget of £700,000. Metrics include
EXPECTED DELIVERABLES	Produce the HRMS system within one month at a budget of £700,000 Must be an acceptable quality, meet engineering company's requirements and meet company and legal compliance. Must include the functions listed in purpose of the project

PROJECT SCOPE

WITHIN SCOPE	<p>Develop a HRMS System within 1 month at a budget of £700,000 for an engineering company with 200 employees at three sites. The functions of the HRMS must include:</p> <ul style="list-style-type: none"> • HR administration, • payroll, recruitment, • talent management, • Employee data, recruitment, and application tracking • Time and attendance management • Payroll processing • Salaries, performance, and Benefits tracking • Training and development, and other possible functions. • Web, desktop, and mobile application with Graphical User Interface • Backend Application on server or cloud platform • Choose an appropriate project management plan • Choose an appropriate software development methodology • Choose the Programming Languages, IDEs, Frameworks, APIs, and DevOps tools to create the software • Choose appropriate project, task, and team management tools for this project • Gather Requirements • Choose a cloud computing platform if required • Risk Management Plan • Communications Plan • Dispute Resolution Plan • Quality Management Plan •
OUTSIDE OF SCOPE	<ul style="list-style-type: none"> • Any unnecessary features that the company doesn't need to the software that will increase costs, time, and resources – Known as Gold Plating • Avoid feature creep, scope creep • Over Engineering • Frivolous High-Risk decisions

TENTATIVE SCHEDULE

KEY MILESTONE	START	FINISH
Form Project Team and Conduct Preliminary Review	01/03/2024	01/03/2024
Finalize Project Plan and Project Charter	01/03/2024	01/01/2024
Conduct Initiation Phase	01/03/2024	04/03/2024
Conduct Planning Phase	05/03/2024	06/03/2024
Conduct Execution Phase	07/03/2024	25/03/2024
Conduct Monitoring and Controlling Phase	26/03/2024	29/03/2024
Conduct Closure Phase	01/04/2024	01/04/2024

Stakeholder Register

PROJECT NAME	HRMS System Software	BEGIN DATE	01.03.2024	VERSION NUMBER	1.0
CLIENT	Engineering Company	END DATE	01.04.2024	DATE PREPARED	28.02.2024
POINT OF CONTACT	Nexus Solutions	DURATION	1 Month	AUTHOUR	S275931
PROJECT DESCRIPTION	Human Resources Management System software to automate and modernise the Human Resources department at a UK Engineering Company that employs 200 people. Project needs to be completed within 1 month with a maximum budget of £700,000. This project will solve quality of service and compliance issues currently facing the Engineering Company's HR department.				

STAKEHOLDER REGISTER							
OVERVIEW					CONTACT		
STAKEHOLDER	TITLE/ROLE	COMMUNICATION TYPES	COMMUNICATION VEICHLES	STAKE IN PROJECT	ADDRESS	EMAIL	PHONE
S275931	Project Manager	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person	Project Manager	Nexus Solutions	S275931@nexussolutions.com	0845 836298
Engineering Company Representative	Project Sponsor	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, In Person	Sponsor / Client	Engineering Company	representatives@engineering.co.uk	0800 453826
Steering Committee Members	Steering Committee	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person	Steering Committee	Engineering Company and Nexus Solutions	steeringcommittee@engineeringcompany.co.uk steeringcommittee@nexussolutions.com steeringcommittee@hrmsproject.com	0845 836365 0800 453888
Tilda Wheeler	Steering Committee	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person	Steering Committee	Engineering Company	tildaw@engineering.co.uk	0752635321
Whitaker Newton	Steering Committee	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person	Steering Committee	Engineering Company	whitakern@engineering.co.uk	0752278155
Mariah Tate	Steering Committee	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person	Steering Committee	Engineering Company	mariaht@engineering.co.uk	0737060043
Kaley Mills	Steering Committee	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person	Steering Committee	Engineering Company	kaleym@engineering.co.uk	0730862081
Vaughan Banner	Steering Committee	Electronic, Verbal,	Email, Phone, MS Teams,	Steering Committee	Engineering Company	vaughnb@engineering.co.uk	0735702424

		Written, Visual	Zoom, Slack, WhatsApp Business, in person				
Kishan Elwin	Steering Committee	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person	Steering Committee	Nexus Solutions	kelwin@nexussolutions.com	0791803116
Andrej Favager	Steering Committee	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person	Steering Committee	Nexus Solutions	afavager@nexussolutions.com	0786893626
Fachtna Abramsson	Steering Committee	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person	Steering Committee	Nexus Solutions	fabramsson@nexussolutions.com	0735288019
Puja Chalupová	Steering Committee	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person	Steering Committee	Nexus Solutions	pchalupova@nexussolutions.com	0749173758
Chantrea Vicario	Steering Committee	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person	Steering Committee	Nexus Solutions	cvicario@nexussolutions.com	0714892946
Jack Fenlon	Team Leader	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person	Technical Team Leader (Development)	Nexus Solutions	jfenlon@nexussolutions.com	07362185637
Susan Price	Team Leader	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person	Technical Team Leader (Operations)	Nexus Solutions	sprice@nexussolutions.com	07563510956
Alex Witherspoon	Team Leader	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person	Non-Technical Team Leader	Nexus Solutions	awitherspoon@nexussolutions.com	07123456789
Liu Yukai	Tech Lead	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person	Tech Lead	Nexus Solutions	lyukai@nexussolutions.com	07579602645
Kyle Seddon	Deputy Tech Lead	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person	Deputy Tech Lead	Nexus Solutions	kseddon@nexussolutions.com	0926781949
Amy Lawrence	Project Administrator	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person	Non-Technical Team Member	Nexus Solutions	alawrence@nexussolutions.com	07673628561

Laura Lo	Project Administrator	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person	Non-Technical Team Member	Nexus Solutions	llo@nexussolutions.com	07453917463
Muireadhach Kumar	Project Administrator	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person	Non-Technical Team Member	Nexus Solutions	mkumar@nexussolutions.com	07905768153
Sybil Bain	Project Administrator	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person	Non-Technical Team Member	Nexus Solutions	sbain@nexussolutions.com	07895672551
Horatia Holme	Project Administrator	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person	Non-Technical Team Member	Nexus Solutions	hholme@nexussolutions.com	079926645003
Morgen Macey	Frontend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	mmacey@nexussolutions.com	0727569267
Chaya Lindholm	Frontend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	clindholm@nexussolutions.com	0775772599
Khubilai Donohue	Frontend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	kdonohue@nexussolutions.com	0767180263
Marissa Denzil	Frontend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	mdenzil@nexussolutions.com	0774781868
Kallinikos Neville	Frontend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	kneville@nexussolutions.com	0786588206
Onisim Sobel	Frontend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	osobel@nexussolutions.com	0717122243
Asklepiades Kováč	Frontend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp	Technical Team Member	Nexus Solutions	akovac@nexussolutions.com	0790971190

			Business, in person, GitHub				
Ljudevit Adam	Frontend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	ladam@nexussolutions.com	0788135852
Ramana Falconer	Frontend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	rfalconer@nexussolutions.com	0756279371
Tove Talbot	Frontend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	ttalbot@nexussolutions.com	0737756543
Barbie Sloane	Backend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	bsloane@nexussolutions.com	0770188209
Birk Padovan	Backend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	mpadovan@nexussolutions.com	0734576818
Butrus Saller	Backend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	bsaller@nexussolutions.com	0780254161
Calogerus Spannagel	Backend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	cspannagel@nexussolutions.com	0796337477
Hua Cheung	Backend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	hcheung@nexussolutions.com	0790078401
Yazhu Chai	Backend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	ychai@nexussolutions.com	0774531563'
Seong-Su Park	Backend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp	Technical Team Member	Nexus Solutions	sspark@nexussolutions.com	0746699861

			Business, in person, GitHub				
Roman Olson	Backend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	rolson@nexussolutions.com	0728522035
Yukiko Akiyama	Backend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	yakiyama@nexussolutions.com	0754483349
Adelina Havlíčková	Backend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	ahavlickova@nexussolutions.com	0760278124
Cam Nguyễn	Backend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	cnguyen@nexussolutions.com	0787943772
Tatum Evered	Backend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	tevered@nexussolutions.com	0772328370
Raniero Weeber	Backend Programmer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	rweeber@nexussolutions.com	0788556136
Amvrosiy Vico	Software Tester	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	avico@nexussolutions.com	0788556136
Laïla Al-Amin	Software Tester	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	laamin@nexussolutions.com	0742182934
Navneet Nibhanupudi	Software Tester	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	nnibhanupudi@nexussolutions.com	0729684326
Kyung-Sook Choi	Software Tester	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp	Technical Team Member	Nexus Solutions	kschoi@nexussolutions.com	0790585632

			Business, in person, GitHub				
Zahida Sherazi	Software Tester	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	asherazi@nexussolutions.com	0786976512
Vasiliy Andreyev	Software Tester	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	vandreyev@nexussolutions.com	0766483808
Somchai Bunnag	Software Tester	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	sbunnag@nexussolutions.com	0728084755
Xiuying Xu	Software Tester	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	xxu@nexussolutions.com	0743450498
Aleks Santoro	Software Tester	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	asantoro@nexussolutions.com	0754237475
Ketill Meyrick	Software Tester	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	kmeyrick@nexussolutions.com	0760307356
Cherie Townsend	Software Engineer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	ctownsend@nexussolutions.com	0729671635
Leyton Wilder	Software Engineer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	lwilder@nexussolutions.com	0749452158
Indy Skywalker	Software Engineer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	iskywalker@nexussolutions.com	0777201589
Asterix McFly	Software Engineer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp	Technical Team Member	Nexus Solutions	amcfly@nexussolutions.com	0792362131

			Business, in person, GitHub				
Borislav McReynolds	Software Engineer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	bmc Reynolds@nexussolutions.com	0716968723
Bine Alinejad	Software Engineer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	balinejad@nexussolutions.com	0710870326
Jagadish Devi	Software Engineer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	ldevi@nexussolutions.com	0762893354
Fajr Peng	Software Engineer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	fpeng@nexussolutions.com	0799380818
Blai Loyola	Software Engineer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	bloyola@nexussolutions.com	0750215553
Stanislav De Cloet	Software Engineer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	sdcloet@nexussolutions.com	0727223323
Vasilii Vilhjálmsson	Software Engineer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	vvilhalmsson@nexussolutions.com	0724277120
Xavier Krupina	Software Engineer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	xkrupina@nexussolutions.com	0717759341
Ariel Santiago	UI/UX Designer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	asantiago@nexussolutions.com	0720674264
Babette Sedlák	UI/UX Designer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp	Technical Team Member	Nexus Solutions	bsedlak@nexussolutions.com	0798619021

			Business, in person, GitHub				
Annick Rounds	UI/UX Designer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	arounds@nexussolutions.com	0746218326
Fabrizio Podsedníková	UI/UX Designer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	fpodsednikova@nexussolutions.com	0733966406
Brutus Ó Floinn	UI/UX Designer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	bofloinn@nexussolutions.com	0796208848
Charilaos Jansson	UI/UX Designer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	cjansson@nexussolutions.com	0712294983
Raijin Ripley	UI/UX Designer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	rripley@nexussolutions.com	0784281997
Mehrdad Nakajima	UI/UX Designer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	mnakajima@nexussolutions.com	0755745429
Eleonóra Charron	UI/UX Designer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	echarron@nexussolutions.com	0792940273
Padma Rivero	UI/UX Designer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	privero@nexussolutions.com	0790467661
Elijah Picard	Software Designer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	epicard@nexussolutions.com	0743618832
Nobutoshi Iwamoto	Software Designer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp	Technical Team Member	Nexus Solutions	niwamoto@nexussolutions.com	0787032504

			Business, in person, GitHub				
Duilio Dunn	Software Designer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	ddunn@nexussolutions.com	0731889875
Manoj Duffy	Software Designer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	mduffy@nexussolutions.com	0727153846
Przemko Ғaryyewa	Software Designer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	pcaryyewa@nexussolutions.com	0782387741
Ermentrude Brewer	Database Developer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	ebrewer@nexussolutions.com	0746490097
Elías Jabłoński	Database Developer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	ejablonski@nexussolutions.com	0792900952
Boutros Sala	Cybersecurity Specialist	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	bsala@nexussolutions.com	0762612149
Rahim Jóhannsson	Cybersecurity Specialist	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	rjohannsson@nexussolutions.com	0774819457
Cosette Żbikowski	Cybersecurity Specialist	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	czibkowski@nexussolutions.com	0770310024
Conor Kazlauskienė	DevOps Engineer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	ckazlauskienė@nexussolutions.com	0739681130
Muhammad Kool	DevOps Engineer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp	Technical Team Member	Nexus Solutions	mkool@nexussolutions.com	0720905455

			Business, in person, GitHub				
Filip Parsons	DevOps Engineer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	fparsons@nexussolutions.com	0799242640
Nevaeh Christopherson	DevOps Engineer	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	nchristopherson@nexussolutions.com	0791081102
Theodoard Zamorano	IT Administrator	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	fparsons@nexussolutions.com	0792483402
Warwick Schmidt	IT Administrator	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	fparsons@nexussolutions.com	0780138828
Rebecca Brun	IT Administrator	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	fparsons@nexussolutions.com	0737605363
David Avu	IT Administrator	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	fparsons@nexussolutions.com	0731758185
Dimitrij McNeil	IT Administrator	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	fparsons@nexussolutions.com	0768174999
Micky Audley	IT Consultant	Electronic, Verbal, Written, Visual	Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person, GitHub	Technical Team Member	Nexus Solutions	maudley@nexussolutions.com	0784145856

Kanban Board

Kanban Board for HRMS project. Can also be viewed here: <https://managing-projects-and-teams-diagrams.onrender.com/kanbanchart>



HRMS PROJECT KANBAN CHART S275931									
PLANNED		WAITING		IN PROGRESS		TESTING		DONE	
<div>FEATURE:</div> <div>BUG:</div> <div>IMPROVEMENTS:</div> <div>UPDATES:</div> <div>MAINTENANCE:</div>	FEATURE: talent management	FEATURE: Mobile Application (Android)	FEATURE: Training and development	FEATURE: Employee data, recruitment, and application tracking	FEATURE: Salaries, performance, and Benefits tracking	FEATURE: Payroll processing	FEATURE: Time and attendance management	FEATURE: Design iOS App User Interface	FEATURE: Design Android App User Interface
	BUG: HR Administration causes BSOD on Windows desktop app when logging out of HRMS due to memory leak.	SECURITY BUG: HRMS database vulnerable to SQL injection attacks (vulnerability detected)	BUG: Permission Denied error on AWS for the cloud based components of HRMS due to incorrectly configured IAM Roles.	BUG: Updating an employee's attendance deletes employee's record from HRMS database (logic error)	BUG: Payroll processing divides salaries by zero giving a runtime error.	BUG: Recruitment page on web app returns a 404 not found error	BUG: NavBar unresponsive on Time and Attendance Management web app (incorrect CSS)	FEATURE: Design Desktop App User Interface	FEATURE: Design Web App User Interface
	BUG: Bad usability with UI/UX (design smells) on iOS app when used on iPads based on acceptance testing and client feedback.	BUG: Random crashes on iOS app	IMPROVEMENTS: Change incorrect IAM settings to grant permissions to cloud based components	IMPROVEMENTS: Fix incorrect SQL code in Attendance Management feature (DELETE FROM was incorrectly typed instead of UPDATE WHERE)	FEATURE: Mobile Application (iOS/iPad OS)	IMPROVEMENTS: Fix 404 error on recruitment page by adding port to python code	FEATURE: Desktop Application (Windows)	FEATURE: Design Software Architecture	FEATURE: Design Software Use Case Diagrams
	IMPROVEMENTS: Improvements to UI/UX on iOS app	IMPROVEMENTS: Sanitize SQL inputs, use Safe Query parameters in code	UPDATES: AWS components now working properly	UPDATES: Bug fix for Attendance Management feature SQL code	IMPROVEMENTS: Fix Payroll processing algorithm's logic to prevent it dividing by zero and perform the correct calculations	UPDATES: Redeploy recruitment microservice container with port added to Python code	FEATURE: Desktop Application (macOS)	FEATURE: Design Database Class Diagrams	FEATURE: Design Database ERD Diagrams
	IMPROVEMENTS: Fix buggy memory management C++ code in Windows application that resulted in memory leaks causing BSOD	IMPROVEMENTS: Debug the Swift code in the iOS app using the Xcode IDE to fix runtime errors and replace corrupted PLIST files	MAINTENANCE: Receive feedback from client for improvements	BUG: Linux Desktop application freezes when viewing employee records. Application must be force quit.	UPDATES: New Payroll processing microservice container deployed with correct algorithm	MAINTENANCE: Receive feedback from client for improvements	IMPROVEMENTS: Make NavBar on Time and Attendance Management web app responsive by fixing CSS and improving HTML	FEATURE: Design Wireframes	FEATURE: Design Mockups
	UPDATES: Bug fix for Windows application	UPDATES: Security patch to fix SQL injection vulnerability	IMPROVEMENTS: Fix unwanted infinite loop that loads infinite copies of the employee records from the HRMS database that uses up all of the computer's CPU and RAM usage	BUG: Very slow to sort employees and other human resources on database by name, address, salary and other attributes, poor performance			UPDATES: Hotfix for incorrect CSS and HTML code in web app to make navbar responsive	FEATURE: HR administration	FEATURE: Backend Server-Side Applications
	MAINTENANCE: Receive feedback from client for improvements	UPDATES: Bug fix and UI/UX improvements for iOS app	UPDATES: Bug fix - remove unintended infinite loop from Linux desktop application when viewing employee records	IMPROVEMENTS: Replace current employee and HR sorting algorithm with a more efficient sorting algorithm that is quicker and has better performance			UPDATES: Rebuild Docker container with correct code in Dockerfile and commit to DockerHub	FEATURE: Frontend Server-Side Applications	BUG: Server-Side applications crash when loading Payroll processing feature (Python runtime error)
	MAINTENANCE: Compatibility updates for future technologies, hardware, software, cloud platforms, APIs, frameworks, SDKs, programming languages and operating systems		UPDATES: Performance improvements - update software with more efficient sorting algorithm				MAINTENANCE: Receive feedback from client for improvements	BUG: HRMS installation fails on macOS computers (buggy installer)	IMPROVEMENTS: Fix code on macOS installer
								IMPROVEMENTS: Fix Python runtime error on Payroll Processing microservice to stop server-side applications crashing	UPDATES: Redeployed server applications and containers with bug fixes to Python code
								MAINTENANCE: Continue updating HRMS software for new features, UI/UX improvements, bug fixes, hotfixes, performance improvements and security patches	UPDATES: Bug fixes to macOS installer wizard's source code
								MAINTENANCE: Receive feedback from client for improvements	MAINTENANCE: Provide technical support to client

AWS Cost Estimation

AWS Cost Estimation for cloud-based components.

My Estimate - AWS Pricing Calculator

https://calculator.aws/#/estimate

Contact your AWS representative: [Contact Sales](#) 

Export date: 03/06/2024

Language: English

Estimate URL: <https://calculator.aws/#/estimate?id=25320cf1aa5a7e7a501c19b9c06c4d01b1a48f1d>

Estimate summary

Upfront cost	Monthly cost	Total 12 months cost
52,034.40 USD	44,968.42 USD	591,655.44 USD
		Includes upfront cost

Detailed Estimate

Name	Group	Region	Upfront cost	Monthly cost
Amazon EC2	No group applied	EU (London)	52,034.40 USD	0.00 USD
Status : - Description : Confi g summary : Tenancy (Dedicated Hosts), Workload (Consistent, Number of instances: 1), Advance EC2 instance (r6g), Pricing strategy (Compute Savings Plans 3yr All Upfront)				
Amazon RDS for SQL server	No group applied	EU (London)	0.00 USD	7,100.40 USD
Status : - Description : Confi g summary : Storage amount (100 GB), Nodes (2), Instance type (db.m4.xlarge), Utilization (On-Demand only) (100 %Utilized/Month), Deployment option (Multi-AZ), License (License included), Database edition (Enterprise), Pricing strategy (OnDemand), Storage for each RDS instance (General Purpose SSD (gp2)), Additional backup storage (100 GB)				
Elastic Load Balancing	No group applied	EU (London)	0.00 USD	3,042.56 USD
Status : - Description : Confi g summary : Number of Application Load Balancers (2) Number of Network Load Balancers (3), Processed bytes per NLB for TCP (10 GB per hour), Average number of new TCP connections (10 per second), Average TCP connection duration (480 minutes), Processed bytes per NLB for				

Lorem ipsum

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<https://calculator.aws/#/estimate>

UDP (10 GB per hour), Average number of new UDP Flows (10 per second), Average UDP Flow duration (480 minutes), Processed bytes per NLB for TLS (10 GB per hour), Average number of new TLS connections (10 per second), Average TLS connection duration (480 minutes) Number of Availability Zones that Gateway Load Balancer is deployed to (2), Number of Gateway Load Balancer Endpoints (3), Total processed bytes (10 GB per hour), Average number of new connections/ flows (10 per second), Average connection/ flow duration (480 minutes) Number of Classic Load Balancers (1), Processed bytes per CLB (20 GB per hour)

Amazon Simple Storage Service (S3)	No group applied	EU (London)	0.00 USD	12,983.00 USD
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Status : -

Description :

Config summary : S3 Standard storage (4000 GB per month), PUT, COPY, POST, LIST requests to S3 Standard (1000000000), GET, SELECT, and all other requests from S3 Standard (1000000000), Data returned by S3 Select (4000 GB per month), Data scanned by S3 Select (4000 GB per month) S3 INT Average Object Size (100000 MB), Percentage of Storage in INT-Frequent Access Tier (1), S3 INT storage (4000 GB per month), Percentage of Storage in INT-Infrequent Access Tier (% of storage that hasn't been accessed in the last 30 days) (0), PUT, COPY, POST, LIST requests to S3 INT (100000000), GET, SELECT, and all other requests from S3 INT (100000000), Lifecycle Transition requests (100000000), Data returned by S3 Select (4000 GB per month), Data scanned by S3 Select (4000 GB per month) S3 Standard-IA storage (4000 GB per month), PUT, COPY, POST, LIST requests to S3 Standard-IA (100000000), GET, SELECT, and all other requests from S3 Standard-IA (100000000), Lifecycle Transition requests (100000000), Data retrievals (4000 GB per month), Data returned by S3 Select (4000 GB per month), Data scanned by S3 Select (4000 GB per month) S3 One Zone-IA storage (4000 GB per month), PUT, COPY, POST, LIST requests to S3 One Zone-IA (100000000), GET, SELECT, and all other requests from S3 One Zone-IA (100000000), Lifecycle Transition requests (100000000), Data Retrievals (4000 GB per month), Data returned by S3 Select (4000 GB per month), Data scanned by S3 Select (4000 GB per month) S3 Glacier Flexible Retrieval Average Object Size (10000 MB), Provisioned Capacity Units (1), null (1), S3 Glacier Flexible Retrieval storage (4000 GB per month), PUT, COPY, POST, LIST requests to S3 Glacier Flexible Retrieval (1000000), Lifecycle Transitions into S3 Glacier Flexible Retrieval (1000000), Restore requests (Standard) (10), Restore requests (Expedited) (10), Restore requests (Bulk) (10), Data retrievals (Standard) (4000 GB per month), Data retrievals (Expedited) (400 GB per month), Data retrievals (Bulk) (4000 GB per month) S3 Glacier Deep Archive Average Object Size (10000 MB), S3 Glacier Deep Archive storage (4000 GB per month), PUT, COPY, POST, LIST requests to S3 Glacier Deep Archive (100000), Lifecycle Transitions into S3 Glacier Deep Archive (100000), Restore requests (Standard) (100), Restore requests (Bulk) (100), Data retrievals (Standard) (10 GB per month), Data retrievals (Bulk) (10 GB per month) S3 Storage Lens Objects (1000 million per month), S3 Batch Operations Jobs (1000 per month), S3 Batch Operations Objects (1000 million per month), Size of encrypted data (4000 GB), S3 Inventory (100 million per month), S3 Storage Class Analysis (100 million per month), S3 Object Tagging (100 thousand per month) GET requests from S3 (1000000000), Duration that the Lambda function is set to execute per request (in ms) (100), Amount of memory allocated to the Lambda function (1000 MB), Size of data

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<https://calculator.aws/#/estimate>

returned by S3 Object Lambda (10 KB) S3 Glacier Instant Retrieval storage (100 GB per month), PUT, COPY, POST, LIST requests to S3 Glacier Instant Retrieval (1000000), GET, SELECT, and all other requests from S3 Glacier Instant Retrieval (1000000), Lifecycle Transition requests (1000), Data Retrievals (4000 GB per month), Data returned by S3 Select (4000 GB per month), Data scanned by S3 Select (4000 GB per month) DT Inbound: Internet (10 GB per month), DT Outbound: Internet (10 GB per month) Number of AccessGrants Requests (1000)

Amazon Elastic Block Store (EBS)	No group applied	EU (London)	0.00 USD	2,304.21 USD
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Status : -

Description :

Configuration summary : Number of volumes (2), Average duration each instance runs (730 hours per month), Storage amount per volume (4000 GB), Snapshot Frequency (2x Daily), Amount changed per snapshot (100 GB), Number of snapshots to restore (1)

AWS Fargate	No group applied	EU (London)	0.00 USD	14,347.09 USD
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Status : -

Description :

Configuration summary : Operating system (Linux), CPU Architecture (x86), Average duration (176 hours), Number of tasks or pods (10 per day), Amount of ephemeral storage allocated for Amazon ECS (20 GB), Amount of memory allocated (16 GB)

AWS CodeDeploy	No group applied	EU (London)	0.00 USD	4,000.00 USD
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Status : -

Description :

Configuration summary : Number of on-premise instances (100), Number of deployments (2000 per month)

AWS CodePipeline	No group applied	EU (London)	0.00 USD	99.00 USD
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Status : -

Description :

Configuration summary : Number of active pipelines used per account per month (100)

Amazon Elastic Container Registry	No group applied	EU (London)	0.00 USD	1,092.16 USD
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Status : -

Description :

Configuration summary : DT Inbound: Internet (1 TB per month), DT Outbound: Internet (1 TB per month), Amount of data stored (10000 GB per month), Data transfer cost (92.16)

3 of 4


03/06/2024, 21:02

My Estimate - AWS Pricing Calculator

<https://calculator.aws/#/estimate>**Acknowledgement**

AWS Pricing Calculator provides only an estimate of your AWS fees and doesn't include any taxes that might apply.

Your actual fees depend on a variety of factors, including your actual usage of AWS services.

[Learn more](#) 

Sequence Activities Diagram

Sequence Activities Diagram available here: <https://managing-projects-and-teams-diagrams.onrender.com/sequenceactivitydiagram>

