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GLOBAL NETWORK

SCHOOL OF ENGINEERING, COMPUTING AND BUILT ENVIRONMENT

DEPARTMENT OF COMPUTING

DIPLOMA IN COMPUTER STUDIES/ DIPLOMA IN INFORMATION TECHNOLOGY

[DSA 1214 Object Oriented System Analysis and Design]

[LECTURER'S NAME]
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Assignment 1

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ASSIGNMENT 1

Module Title:	*Object- Oriented System Analysis and Design*
Module Number:	*DSA1214*
Module Tutor Name(s):	*Dr. Justtina John*
Academic Year:	*Semester September 2020*
% Weighting (to overall module):	*10%*
Due Date	*19 October 2020- Week 6*
Learning Outcome	*CLO1: Describe various techniques of System Development Life Cycle (SDLC) methodologies.*

Dates and Mechanisms for Assessment Submission and Feedback

Mechanism for Handout to Students: *via Canvas*
Mechanism for Submission of Work by Student: *Softcopy online submission via Canvas.*
Date by which Work, Feedback and Marks will be returned to Students: 3 weeks after the submission.
Mechanism for return of assignment work, feedback and marks to students: Feedback will be provided by a marking template. This will be available to students via Canvas. The discussions at the walkthroughs will also provide informal feedback.

General Information

This assignment includes **group and individual components**.

Question 1-4 to be completed as groups, a maximum of 5 students per group. Question 5 should be completed individually.

Only one submission per group. This will contain both the group and individual elements. The individual element must be clearly labelled to indicate which group member completed them.

Academic Integrity Statement: You must adhere to the university college regulations on academic conduct. Formal inquiry proceedings will be instigated if there is any suspicion of plagiarism or any other form of misconduct in your work. Students must **NOT** collude with other groups of students or plagiarize their work.

Diagrams may be used where they are helpful to support your arguments or description. If they are not your own work, the source must be referenced. Please help us to handle and mark your work efficiently. Clearly label your assignment in the cover page.

Documentation guidelines

Written to a professional standard using MS Word and show appropriate and consistent use of type, fonts and line spacing (for this assignment use Arial 12 and single spacing) and page layouts (Justify). Give each page a footer (font size 8) that includes the group name, module code, and page number.
Penalties for Late Submission: For late submission of this Assignment, a penalty of a reduction by 10% of the maximum mark may be applicable for each Calendar Day or part thereof that the submission is late. An Assignment submitted more than **TEN** Calendar Days after the deadline will have a mark of zero recorded for this Assignment.

Submission arrangement

1. Front page
2. Table of Content
3. Main Report (Question1-5)
4. Bibliography List
5. Marking Rubric

Assignment Background

Initiate an idea to develop the information system to support current business need and to solve the organization problem. The idea can be in terms of a new system or upgrade current existing system to bring new opportunities for the organization to gain more benefits. Example: Solution for education-based institutions, medical, online shopping, smart parking, health monitoring apps etc.

A proposed information system can be through real client request, observation from the existing system that you are familiar with or any other sources. The proposed solution can be in the form of a website, mobile application or etc.

Assignment Task

Based on the given scenario you are required to analyze and document the following:

Question 1
Write a concise introduction that properly introduces the proposed solution. The discussion should clearly state the rationale of the project. (10 marks- Group)

Question 2
Analyze and discuss the development approach that you would propose to adopt for the above system. You are required to justify your selection by comparing different types of methodology based on the six selection criteria to select an appropriate methodology. (20 marks- Group)

Question 3

Create a system request for the proposed system. System request should consist of the project name, project sponsor, business need, functionality/business requirements, expected value and special issues or constraints. (20 marks- Group)

Question 4

Analyze high level requirements for the proposed system. High level requirement should consist of 10 functional requirements, 5 non-functional requirements You are required to classify the requirement based on the requirements prioritizations. (30 marks- Group)

Question 5

Explain the factors of project planning that are important for a project to complete successfully. Each group member should explain different issues. For example, if there are five people in your group then you should produce five different issues. The explanation should be in detail and must be supported by some examples. (10 marks- individual).

Table of Content

Main Report

Question 1

In December 2019, the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), or most commonly referred to as "COVID-19" or just "coronavirus", was first discovered in Wuhan, China. This disease has since caused the COVID-19 pandemic, which was officially declared by the World Health Organization (WHO) in March 2020. As of 12 October 2020, the coronavirus has infected more than 37.5 million people and caused over 1.07 million deaths.

Aside from the worldwide health emergency, the COVID-19 pandemic has also caused a major ongoing global economic crisis, now known as the COVID-19 recession, which is currently the worst global economic crisis since the Great Depression that took place during the 1930s. As of now, most countries are facing an economic recession or depression as a result of the pandemic. Needless to say, Malaysia is no exception.

On 16 March 2020, Prime Minister Muhyiddin Yassin officially declared the Movement Control Order (MCO) that took effect on 18 March 2020. The MCO restricted movements, travels, gatherings and various activities involving close contact. Simply put, everyone was not allowed to leave their homes except for the purpose of buying food and other necessities. In addition to the global economic crisis, the MCO severely affected businesses throughout the country, with the exception of medical equipment manufacturers such as Top Glove. Small-medium enterprises and local businesses including food hawkers, coffee shops, food courts, restaurants, hotels and the like faced severe financial issues due to the lack of customers. The lack of customers caused a sharp drop in the sales and income for these small-medium enterprises, which meant that many of them could not continue operating for long. As of today, many of these small-medium enterprises have shut down because they could not afford continue paying for rental fees, staff wages, operational fees and other expenses. Many of them have opted to use online platforms such as GrabFood, FoodPanda, Lazada, Shopee and more to continue selling their food, products and services. However, there is a large number of them who have been left out due to their low reputation and recognition of quality service.

Therefore, to help maintain the welfare of these small-medium enterprises in these challenging times, a project team could propose to create an advertising and recommendation platform for small-medium enterprises in the country. This platform is a web-based solution that provides them with a wide range of tools and features to help them promote their products or services on the Internet. The platform also provides guidance and tips to gain attention of their target community.

To name a few functions that it'll provide, the platform will be able to identify different types of enterprises registered on the website and categorize them into their respective fields. The platform will provide a search function so users would be able to easily find them without searching through countless organizations or businesses that aren't what they are looking for. Users of the platform can choose to filter search results

in order of the highest or lowest rating, number of reviews, business location, price ranges of the selling products and so on. This should aid users in their search for the best possible services or products available or to find enterprises with less reviews or low rating that they want to lend a hand to. This platform is designed to recommend a few small-medium enterprises from each category that hasn't received much attention daily to direct more users' attention to them and subsequently instil a boost of willpower into them in hopes of more customers.

The platform also lets enterprise owners create business profiles for their own business. Their business profile can be made and customized as they like on the website and can be linked with their social media accounts or any other relevant platforms. By making a profile, they can give in-depth descriptions of their businesses, promote products or services that they offer, and also direct users to their main purchasing platform if users want to directly purchase their goods online. The platform will also provide a guide to help them set up and improve their business portfolio on the website, reminding them to fill in any optional information that they may have missed out and also recommending various social platforms including unpopular ones that they can advertise their business on. This can help small-medium enterprises because by widening the range of platforms that they can spread their name to, their reputation will surely be raised, and they may find potential customers that give support and acknowledge them.

Question 2

Based on the project background described in the answer to Question 1, phased development is the most appropriate methodology to be used for developing the system. The key objectives for selecting this methodology are fast development processes and delivery of a high-quality system at a relatively low investment cost. Additionally, it is also chosen based on the six main criteria of selecting a suitable methodology listed as below:

Clarity of user requirements – The user requirements for the system are very clear. Some user requirements that have been identified are as follows: allowing users and enterprise owners to register and login into the system, allowing users to search the system database for available businesses, allowing users to filter search results by rating, reviews, popularity etc, letting users view business profiles made in the system, allowing users to report issues in the system and much more. The appropriate methodology to be used should be either RAD-based or Agile-based. In comparison with other methodologies, phased development would be most suitable as the user requirements that have already been clearly identified can be split into several groups and implemented in a series of versions of the system.

Prototyping would not be suitable because the user requirements are already clearly described, so it would be unnecessary to make imperfect prototypes to be tested. As for throwaway prototyping, it is not suitable as there is no need to spend large amount of time to perform thorough analysis and make design prototypes. Structured design methodologies including waterfall development and parallel development would be suitable based solely on the context of the clarity of the user requirements. However, after taking other methodology selection criteria into account, structured design methodologies would not be suitable. Agile methodologies would be suitable as well, but they emphasize more on embracing unclear or regularly changing requirements which is not the case for this project.

System complexity – As the project team progresses through the overall development process, they might identify more requirements that need to be implemented. When the scope of requirements grows, the system will become more complex. Therefore, phased development methodology would be suitable as the project team will perform new analysis and design in the inception of each system version to determine which features should be added, revised or removed completely based on user feedback regarding the previous version of the system. While developing these complex system features in each phase, project developers will also ensure that the system development is done in a way so that system issues will have a lower chance of occurring throughout the whole process and after the complex system is released to the public.

Prototyping isn't chosen because it is bad for developing complex systems. The system will slowly scale up in terms of complexity over time, and therefore will cause system issues that will be hard to resolve to appear in the later versions. Throwaway prototyping is suitable for complex systems because it conducts careful and thorough analysis for systems, but it is unnecessary for the system as the system isn't complex until well into the later stages of development. Structured-based methodologies like waterfall development and parallel development are also good for complex systems as they ensure that the project team did complete research, analysis and design before moving on to the implementation stage, but like throwaway prototyping, it is unnecessary for the system which isn't that complex in early stages. Agile methodologies are also good for complex systems as their continuous user-driven system development style can produce systems that highly satisfy clients' requirements and desires, no matter complex or not. It, however, increases workload of the project developers as they will still need to spend time and energy on finding solutions for these complex systems, and on a tight schedule too.

System reliability – Phased development methodology is chosen for the system to achieve an ample level of system reliability, although it is not top priority. Logically, the project team will want the system to comprise dependable and accurate information, perpetually relaying live data of registered enterprises to users. They will want the system to detect any false information, specifically information about the enterprises and their availability or current existence so that they can decide which information should be added, removed or updated.

Prototyping is not good for achieving system reliability because it very quickly provides an early prototype of the system which may not contain reliable information of the enterprises. This will give a bad impression of the system to users and reduces credibility of the information residing in the system. Throwaway prototyping is perfect for achieving system reliability, but project team members don't need to waste too much time for thorough analysis and making design prototypes as the system can already achieve reliability by using multiple development phases. Waterfall development and parallel development are also good for developing systems that have reliability, but the time taken from the analysis phase to implementing the system design can take too long for the system. On the other hand, agile methodologies are also suitable, but after considering other selection criteria, it is decided that phased development is better suited for the system's scope.

Familiarity with technology – Using phased development, requirements that use technology that the project team is familiar with can be grouped together to be implemented in the early versions of the system, while requirements using unfamiliar technology can be implemented in later versions of the system. Since additional analysis and design are performed before implementation of each version, the project team would be able to allocate adequate amount of time to research and investigate the unfamiliar technology that will be used.

Prototyping methodologies would not be suitable as analysis and design phases are less emphasized on because they are performed simultaneously with the implementation phase, hence analysis and design are conducted insufficiently to properly research and understand the unfamiliar technologies. Throwaway prototyping is excellent for unfamiliar technology as the project team can create design prototypes for requirements that use unfamiliar technology so that they can test the waters, but they do not have enough time for that. Structured design methodologies including waterfall development and parallel development are not suitable because there is little to no room for making errors or conducting research for unfamiliar technology. Agile methodologies are also suitable but unnecessary for this project.

Short time schedule – The COVID-19 pandemic has already taken a toll on Malaysia's economy. Small-medium enterprises are struggling financially to survive as we speak. Therefore, the project team has a short time schedule as this system needs to be deployed as soon as possible to help the local small-medium enterprises. Phased development is most suitable because the project team can very quickly deploy the first version of the system. This way, the system will be able to provide business value to the users faster compared to other methodologies. The project team then acquires feedback from the users, then start work on the second and subsequent versions of the system as soon as possible. In the event that the project team is unable to deliver the system before the deadline, they can adjust their schedule by removing or revising certain functions from the version under development in order to complete the project on time.

Prototyping and phased development have a similar purpose – to let users get their hands on an early system to interact with, but phased development is chosen over prototyping as an early system that is more furnished is more ideal for establishing a good initial user experience than an early system that only comprises minimal functions. Throwaway prototyping would not be suitable as there is not enough time to conduct thorough analysis and create design prototypes. Structured design methodologies including waterfall development and parallel development would be unsuitable because they take significantly longer time to complete the system compared to phased development. It would also be difficult to adjust the schedule to meet the deadline if the project team encounters problems that may induce delays. Agile development is good in this aspect as well, but phased development will already be sufficient for the system.

Schedule visibility – Phased development is chosen because an excellent level of schedule visibility can be achieved by dividing the overall system into several versions. By delivering the system to the users several times throughout the project, the users will be able to stay updated on the system development's progress. Their expectations will be met instead of feeling like they have been left in the dark about the progress of system development. Upon completion of each system version, user feedback is also acquired to identify potential risks and more user requirements to improve the system. Implementing solutions for these requirements will give them an impression that the system is making good progress.

Prototyping is suitable for ensuring schedule visibility as users will know about the progress of the system by acquiring system prototypes that are tailored according to their feedback very quickly, but the prototypes are incomplete and lacking in some way. Throwaway prototyping is quite suitable because this methodology focuses on developing and delivering systems that have been carefully designed after evaluating and collecting design prototypes that have been approved by the majority of the users, but the project team will work behind closed doors after collecting the overall idea of the system design desired by the users. This leaves users unnotified of the development progress of the final system that they are working on. Structured-based methodologies like waterfall development and parallel development are not suitable for having schedule visibility in general as SDLC phases are worked in a step-by-step process, leaving users out of the development process and only request feedback from users after the development is implemented, which will take a long time for that to happen. Agile-based methodologies are also a better choice for providing schedule visibility as one of its principles focuses on continuous communication between developers and clients. However, this could become a huge contributor for work stress as it is vulnerable to scope creep. Therefore, in this case, the system needs to adopt phased development because the project team can deliver better and complete versions of the system by phases under set deadlines, while also taking care of the project team’s mental and physical wellbeing.

Question 3

Project name: Small-medium enterprise promotion website

Project sponsor: Rizal Naini, Chief Executive Officer, SME Corporation Malaysia

Business need: This project has been initiated to help small-medium enterprises gain more potential customers by allowing them to self-promote on our website and ultimately help them increase their sales and income during the COVID-19 pandemic or even after the pandemic.

Functionality / Business requirements:
Using this website, small-medium enterprises' owners should be able to register their businesses, which will then be listed on the website for visitors to see. The owners should be able to fully customize their business portfolio/profile to include and display their menu/catalogue, location and social media links. Visitors of the website should then be able to search through and view these registered enterprises' business profile on the main page of the web-based system. Visitors can choose to filter their search result to look for food, product or service that they desire. The functionality of the system is listed below:

The system itself should:
- Display all enterprises registered on the website, including their name, logo, category and location.
- Calculate the number of times each enterprise has been viewed by distinct users in a specific time frame.
- Recommend enterprises from each category which have been viewed the least recently by displaying them on the main page.
- Notify enterprise owners on the number of distinct users who view their business each day, week and month.

Enterprise owners should be able to:
- Register their enterprises.
- Customize their business profile.
- Receive tips and guides to improve their business profile.

Users, including both enterprise owners and visitors should be able to:
- Browse all the registered enterprises on the website.
- Search for specific enterprises.
- Filter their search result based on category, location, rating and number of reviews.
- Give ratings and write reviews for enterprises.
- Report issues or misinformation in the system.

Business value:
We expect the sales of small-medium enterprises to increase as a result of an increase in their customers who discover them by browsing through and searching them on our website. We also expect our country's economy to achieve slight recovery or growth, as we expect consumer spending to gradually increase as more people start buying products from local small-medium enterprises. We also expect to be able to safeguard one of our country's major sources of income, which is Malaysia's tourism industry. As we know, tourists' main interests when visiting our country are our culture and food, therefore it is very important that we ensure the survival of local small-medium enterprises especially food hawkers, coffee shops, restaurants, food courts and hotels as they play a huge part in the tourism industry.

The conservative estimates of tangible value to small-medium enterprises:
- RM42,069,000 in sales
- RM690,000 reduction of telecommunication expenses

Special issues or constraints:
- The analysts have identified the challenge of getting exposure and recognition by the public. If the website does not receive enough attention, it will eventually be rendered useless.
- The website will need hired administrators to monitor its web activity and status consistently. The salary for administrators should be determined and considered adequate.
- The website should be completed and deployed as soon as possible, ideally before the year ends.

Question 4

Functional requirements:

- The system must allow enterprise owners to register their enterprises on the site.
- The system must allow enterprise owners to customize their business profiles and be able to edit their enterprise logo, enterprise banner, enterprise name, enterprise description, contact methods, links to their social media pages or their store page on online shopping platforms and food delivery applications, and media such as photo of their business premise from street view or their catalogue.
- The system must display all enterprises registered on the website, including their name, logo, category and location.
- Visitors of the website must be able to browse all registered enterprises on the website.
- Visitors of the website must be able to search for specific enterprises.
- Visitors of the website must be able to filter their search results by rating, number of reviews, location and category.
- Visitors of the website must be able to view business profiles of the enterprises they clicked on, the business profiles must show the name, logo, banner, description and all other information added by the respective owners.
- Visitors of the website should be able to rate and write reviews for enterprises.
- All users of the website should be able to report problems including bugs, enterprises categorized wrongly, enterprises with inappropriate name, logo or content on their business profile, reviews with inappropriate, hateful or inaccurate content.
- The system should recommend enterprises from each category which have been viewed the least recently by displaying them on the main page.

Non-functional requirements:

- The system must encrypt confidential enterprise data using an encrypter before recording them into the system's database.
- Website must be designed with mobile-friendly layout and user interface which may include appropriately sized buttons that are easy to tap, texts that are large enough to read easily, and more, so that mobile users can interact with the system easily and conveniently.
- Important system features such as searching and filtering results should perform fast, ideally within 3 seconds.
- The system should clearly differentiate halal and non-halal businesses to respect Muslims' religious beliefs.
- The system should allow users to change preferred language.

Question 5

Proper staffing of the project is an important factor for a successful project. Project staffing includes determining the number of people that should be assigned to the project, matching project members' skills with appropriate project tasks, and minimizing conflict throughout the project. The project manager must decide wisely on the number of people to be assigned to a project as a project team that is too large may be difficult to manage, but a project team that is too small may not be able to complete the project on time. The project manager should also be able to identify the strengths and weaknesses of every member in the project team before assigning tasks. The project manager should then assign tasks most suited to each project member based on their strengths. This is to ensure that every task of the project can be done with utmost efficiency and produce quality results. This can also reduce the time spent on each task as the assigned members will not have to spend too much time researching problems and correcting their mistakes. Ultimately, this can also help prevent unnecessary costs and potential conflict that may occur throughout the whole project. Taking a website as an example, there would typically be front-end, back-end and full stack developers on the development team. The project manager should assign front-end developers on tasks related to the user interface and user experience of the website, back-end developers on tasks related to server-side programming, databases, and so on, while full stack developers should be assigned to tasks related to their expertise. Provided that every project task is completed with efficiency by competent project members, a quality final product should be able to be delivered on schedule.

by THOR WEN ZHENG

Break times should be set for project workers to relieve pent-up work stress and fatigue as it is also one of the factors for a project’s success. This is to avoid letting project workers work in a stressful environment. A stressful environment plays a major role in demotivating workers and induce worker burnouts, which may lead them to procrastinating and not cooperating with the project team’s plan. That's why, creating a relaxing work environment for project developers benefits the project development process because project workers have a more positive mindset, encouraging and motivating themselves to not give up throughout the whole development process. For example, the project team should decide on a time to do some team-building games and exercises or just simply to give workers some individual time. This can help them take their minds off problems that need time to resolve. Perhaps with a clearer mind after a moment of rest, they will be able to figure things out more easily after releasing all the frustration of not being able to solve a problem. Passionate and motivated workers tend to be more focused on their tasks and maintain a consistent pace throughout the system development, and therefore this will affect the development process to be smoother and be without problems. Most importantly, the project developers will slowly come into terms with the pressure that come with their work and learn how to accept and deal with it efficiently.

by LIM ZHE YUAN

Planning a strong project closure is important in project planning as well for a project to be successful. The closure of the project is the final phase of our activity, it is the last step of the project life cycle, and like some other part of a task, it requires a cycle. Project manager should expect to ensure expectations have been completely finished and given off because handing over an unfinished project early will not produce a satisfied customer. Project manager should audit all the project documentation to guarantee the sum total of what gatherings have been paid for the work and there are no outstanding invoices. They should officially discharge assets from the project, including providers, contractual workers, team members, and some other accomplices, informing them of the finish of the project and affirming any last installments or commitments, and authoritatively discharge them so they are allowed to deal with different undertakings. A posthumous or audit project is one of the most significant strides of the undertaking conclusion measure. This is a chance to audit the triumphs, disappointments, and difficulties of the extend and recognize open doors for development going ahead. Project manager and their teams consistently feel the strain to convey ventures on close timetables and inside financial plan, and that can get unpleasant. In this way, when an intense task is done and conveyed to the customer or to the board, numerous groups get together to celebrate and let loose a little. The finish of a big project is a major achievement and speaks to the zenith of numerous long periods of difficult work and commitment from a group of benefactors.

by TAN CHIN HUAI

Teamwork is one of the most important factors of project planning to complete a project successfully. Teamwork is the collaborative effort of a group to achieve a common goal or to complete a task in the most effective and efficient way. When we want to create and develop a system, we must have a team to complete the project, the project is difficult to complete without a team. Let's say we have a few roles in a project team, everyone must perform their assigned tasks, only then will the project complete successfully. For example, the project manager must manage the team of analysts, programmers, technical writers and other specialists. System analysts must design the information system and the business processes. Other project members must also do their own work. Every role in a project team is ultimately related with other roles, everyone must inform each other of their progress in the project to make sure they know what their next step is. Therefore, everyone in the project team must have high level of teamwork to ensure that the project is done successfully. If anyone didn't do their own work, the project can't be completed successfully because it is like the project is lacking a part or component. Teamwork is important for any project in a team and can help us achieve our goals.

by LIEW WAI TONG

Communication is key when it comes to a successful project. Planning, teamwork, etc. will be naught if the project team can't communicate with each other. It doesn't matter whether you are working in a small project team or even a large private company's project, it's a basic necessity to communicate with each other. For example, a project manager must ensure that the team members are regularly informed of any information regarding their roles, responsibilities, risks, objectives, customer needs, time schedule and the project details to prevent miscommunication and delays. Another example of why communication is key is that we live in a country where we speak various languages, so to ensure that the project team will run successfully we must be able to communicate fluently to ensure that there is no miscommunication or conflict within the team and to do that the project manager must be able to bring multiple languages to work as one. And to ensure effective communication every now and then the project manager must organize a weekly meeting to discuss any problems that need to be solve quickly. Therefore, basic communication is key when it comes to the effect of the project development quality and efficiency.

by KHOO SOON FATT

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Marking Rubric

Question 1- 10 marks

Marks	Criteria
8-10	Good organization; points are logically ordered; sharp sense of beginning and end. Good identification of the project rationale.
6-7	Organized; points are somewhat jumpy; sense of beginning and ending. Need to emphasize more on the needs of the proposed system.
3-5	Some organization; points jump around; beginning and ending are unclear. Lack of clarity on the needs of the proposed solution.
0-2	Poorly organized; no logical progression; beginning and ending are vague. Poorly written introduction.

Question 2- 20 marks

Marks	Criteria
16-20	Excellent analysis and explanation. The justification links to appropriate evaluation of criteria. Sensibly and insightfully linked to the scenario. Concise introduction has been proved as well. Outstanding overall.
11-15	May be good or above in some of plausibility, clarity of explanation and links to scenario. Very brief introduction. Demonstrated some understanding on the scenario.
6-10	May be satisfactory or above in some of the elements of the development approach. Very general write-ups on the introduction and development approach,
0-5	The criteria may not be referred to. Demonstrates little or no understanding of the scenario. Very weak write-ups on the development approach and the background.

Question 3- 20 marks

Marks	Criteria
16-20	Excellent analysis and explanation. Sensibly and insightfully linked to the scenario. Outstanding overall.
11-15	May be good or above in some of plausibility, clarity of explanation and links to scenario. Demonstrated some understanding on the scenario
6-10	May be satisfactory or above in some of the elements of system request. Very general write-ups.
0-5	Demonstrates little or no understanding of the scenario, Unsatisfactory system request.

Question 4- 30 marks

Marks	Criteria
Functional requirement	Each correct identification of functional requirements are awarded 2 marks. For 10 functional requirements = Total 20 marks
Non-functional requirement	Each correct identification of non-functional requirements are awarded 2 marks. For 5 non-functional requirements =Total 10 marks

Question 5- 10 marks

Marks	Criteria
8-10	Provide excellent analytical discussion on project planning shows good understanding of the scenario and provide a sound justification. Marks allocation may differ depends on the completeness of the information.
6-7	Analysis and discussion on project planning has been provided. However, lack of the depth and critical discussion as expected. Marks allocation may differ depends on the completeness of the information.
3-5	Descriptive write-up project planning. Insufficient justification has been provided. Marks allocation may differ depends on the completeness of the information.
0-2	Write-up on project planning shows lack of understanding of the scenario and very little to no justification has been provided. Marks allocation may differ depends on the completeness of the information.

Bibliography - At least 5 – (10 marks)

Bibliography (Harvard)	**Mark awarded**	**Marks available**
Include bibliography but poor referencing format		**0-5**
Sufficient bibliography with correct referencing format		**6-10**