Assignment – Software Engineering

Instructions

1. This is an group assignments for 5 people per each group .
2. Choose group leader. Only a group leader is required to submit to represent a group
3. Deadline is indicated (tomorrow) in google classroom where you will submit it. Any similarities, no matter how small, will be treated as collusion and penalized accordingly. Your work must be your own.
4. You should use the presentations provided and any relevant online material to aid your understanding as you prepare to answer the questions.
5. You may make (reasonable) use of ideas from third-party sources, provided these are cited as References within your answers and included in the Reference list at the end. Do not copy or closely paraphrase text. If any text is reproduced verbatim (i.e. if you quote a source – even the lecture slides), then this must be placed inside quotation marks "__". Make sure you follow these rules, otherwise your use of third-party sources and ideas may well be considered as plagiarism. Standard University policies apply to this and you can check them online for more guidance.
6. You are not required to provide/include any code. This is not a programming assignment.
7. See also the instructions above entitled 'Submission method & guidelines', and below.
8. The marking criteria for each question is provided in each question below.

Task

Imagine you are working in the role of a Software Engineer! You are responsible for managing the development process of a certain software product required by a company. To achieve this task, you will lead a team of 5 developers. (The team all have development skills in C/C++, Python, Java and .NET, and can work with Windows, Mac or Linux, so any of these languages/platforms could hypothetically be used in developing the software).

Answer all the questions on next page of this Assignment Brief regarding the software development process for your product, using your own judgment to decide on several aspects of the process. State clearly any assumptions you make. Watch the Software Engineering lecture presentation, read the lecture slides and research some online material to aid your understanding as you develop your ideas. (The Requirements

Engineering materials also have relevance to some aspects of this Assignment.)

Software to be developed: use your own imagination to suggest a relevant system. Your answers to the various questions should describe how you would convert an original problem (customer specification, requirements) into a software product. The emphasis must be on the software engineering aspects, but no software should be written as part of this assignment. You may use your imagination to construct an appropriate, realistic "problem" for your proposed software to solve. Make sure to credit any sources of inspiration with a reference.

Important: No code needs to be written/provided with this assignment!

Questions

Structure your submission around the following questions (and include them in it.)

Be specific to your proposed software product in each answer; generic answers are not recommended. Where appropriate, justify your answers to demonstrate understanding. Present answers well, in comprehensible language (spelling, grammar, punctuation etc.)

When marking, the following will be among the aspects considered: technical correctness; completeness; application of SE & RE principles/ theory/tools; evidence of your own understanding; originality where relevant; clarity of written expression; presentation; length; references.

1. State the problem briefly; what software are you proposing and why?
2. Write down the proposed product specification: an initial list of requirements (not yet analysed) that the customer wants and needs in the software to be developed. Include some functional, non-functional & technical requirements.
3. Do a preliminary requirements analysis: analyse the initial requirements you listed in Question 2, discussing e.g. potential conflicts or interactions between the requirements and considering development constraints, resources, risks, etc… You may wish to use a MoSCoW list as part of the analysis. (If relevant, note down also any changes to initial requirements from this analysis.)
4. List some key deliverables of the project (e.g. user documentation…)
5. Identify the software development process to be followed and why you have chosen it for developing this product. (E.g. waterfall model, spiral model, etc. – or, more likely, some combination of approaches.)
6. Write an overall plan, showing the main tasks, and the activities, milestones and deliverables associated with each task. Your plan should focus in on software design principles appropriate to your product, and also, refer to the software development process chosen in Question 5. Your plan must clearly incorporate the relevance of abstraction and modularity.
7. Suggest and briefly justify an appropriate version/revision control strategy for the product's source code, to allow your team of 5 developers to collaborate while tracking / controlling changes.
8. Discuss various measures of quality, in specific relation to your software.
9. Suggest and justify either prototyping, or testing/validation, strategies which can be shown to be appropriate for your product.
10. Briefly discuss the scope for further developments, enhancements etc. as part of the anticipated software maintenance after delivery.

All the best!