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| BUFaculty of Science and Technology  | **Coursework Assignment Brief** | **2018-19** |
| Undergraduate Computing  | Level 6 |
| UnitBusiness Processes and Requirements | Unit Leader  |
| Quality AssurorBusiness Subject Group / |
| TitleResubmission Assignment | WeightingThis assignment is a coursework element worth 100% of the overall unit mark |

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| DEADLINEPlease note that is the final time you can submit, Not the time to submit!Date: Time: 12.30 pmSubmission Method: Brightspace Your feedback and mark for this assignment will be provided after the September exam board.Note that as this is a resubmission assignment, the mark will be capped.Feedback method: electronic |

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| THE BRIEFThis assignment forms the entire resubmission coursework for this unit, and covers learning outcomes, 1, 2, 3, 4 and 5.1. Appraise critically approaches to the principal requirements engineering tasks; elicitation, analysis, specification and validation.
2. Demonstrate a comprehensive understanding of relationships among client business processes, requirements and software systems.
3. Evaluate, select, and produce appropriate models of business process scenarios or problem domains, and matching requirements and specifications.
4. Evaluate critically requirements methods and research.
5. Understand the impact of professionalism upon the requirements phase.

DELIVERABLES AND ASSESSMENT CRITERIA / MARKING SCHEMEYou have been given a brief description of a particular application domain, and have been asked to produce a number of deliverables for the final specification and a business briefing document. All deliverables should be submitted in pdf format.**Models of Processes*** Produce Role Activity Diagrams for the given scenario(s). You should produce two distinct models, one of the current (as-is) process, as described, and one to illustrate your suggested revised process (which will incorporate an IT system).
* Aside from accuracy of the models, marks will also be awarded for:
	+ Appropriate separation of the problem into constituent parts.
	+ Sensible choices for logic of process and an appropriate level of abstraction.
	+ Appropriate (and correct) use of notation, e.g., state, actions, interactions and control constructs.

(20 marks)**Requirements identification and modelling**Produce Volere templates, UML Use Case diagrams and SysML Requirements diagrams for the given scenario(s).The models will be marked against the following criteria:* Completeness of the model (all major parts included).
* Appropriate separation of problem into constituent parts.
* Appropriate level of abstraction.
* Appropriate separation between the problem and implementation decisions (technological solutions)
* Appropriate (and correct) use of notation, e.g., actors, requirements blocks.

(50 Marks)**Business briefing document (maximum 2000 words)**Produce a professional business document briefing the business owner on:* The improvements that could be made to their processes, using snippets of your models to highlight your discussion
* Their requirements using snippets of your models to illustrate them
* The different IT solutions that could be employed to enhance the improved process and justification for their selection.
* Recommend one IT solution and discuss the risks and benefits of introducing the improved processes using that IT solution.

 (30 marks)**CASE STUDY:****Process Scenario** Your task is to help a key client to take a vital step in their business life. The client has recently embarked on a new business venture combining existing businesses and adding a range of new services to create and offer a group of trade services to the local community. The business is going through a period of change and has recognized that with the expected growth now was a good time to rectify any shortfalls that would inhibit their ability to cope with this. It is, therefore, important to make sure that any potential solution could be implemented quickly to help with the increased volume of work expected.They are in desperate need to bring in IT throughout all aspects of the business and are keen to embrace mobile IT if it can be shown to be cost-effective. **Overview**The owner has successfully operated a company for over 20 years and has built up a commendable reputation in the local area. An increase in work enquiries over the past twelve months and frequent requests by customers for recommendations for other services, coupled with close working relationships with other local, reliable and reputable tradesmen who were interested in working alongside the owner, has inspired the venture. Now the client is offering services in glazing, roofing, plumbing and building work. The extent of these changes and the considerable growth to the business they have created, and are continuing to create, has caused the management to reconsider their business processes and use of IT. **The Current Situation** Currently, all the businesses are running the same way that the client has been working for 20 years, that is in a traditional manual way without the use of IT systems. Although this is a rather unique situation, as organizations running without any real use of IT are rare nowadays, many trades still operate the core of their businesses without IT, perhaps relying on IT for one or more business support functions such as invoicing or accounts. Without any technology expertise within their team and without spending on external expertise before, the client has lacked the vision and understanding of what is out there to fully appreciate how IT can help to improve their business. As can be imagined, without any real advances in 20 years of operation the current processes are heavily paper based and rather slow, for example; * Communications are made almost entirely by telephone,
* Notes are taken and drawings are made on offcuts of paper,
* Quotes and invoices for major clients are typed up individually.

Add to this the plethora of catalogues that are carried around to show customers, and the fact that an installer can make up to five visits in a single day, each with their own paperwork, and the result is that the client has cluttered vans, an untidy office and no clear way of tracking performance. The current situation not only affects the businesses performance but it also has a significant effect on the work life balance of some of the employees, especially the owner, who spends many evenings typing up quotes and invoices and working through piles of paper to ensure all the necessary parts have been ordered. Hence, not only would the introduction of IT present many potential benefits to staff, but also to other stakeholders too. * Customers are likely to benefit from an improved experience brought about by the efficiency improvements IT can offer, which could also mean freeing up more time so customers can be seen faster than they are currently.
* Suppliers could also benefit from improved communication methods and a higher level of accuracy introduced. For example, by using typed orders over handwritten orders and phone calls.

A key challenge to the success of this project will be how to effectively handle the change management process. An organisation that has run contentedly for 20 years without IT is likely to experience some resistance to a new approach, and there will be risks associated with changing processes, both overall and for specific changes. Furthermore, the staff can all be classified as novice IT users so this has to be a major consideration if the proposed solution is going to be appropriate and thus utilized effectively. An initial analysis of the business processes has already taken place, and the following notes have been provided. **Notes from initial analysis****Customer Enquiries**Customer enquiries are dealt with as follows. The customer, having somehow come across the company contact details will phone or email. The simplest scenario is where the customer rings and the call is answered. Otherwise, a member of office staff, having got an enquiry (e.g., by having checked the answerphone), will attempt the contact the customer to arrange an appointment, which may involve a further call back. Once, the appointment is agreed with the customer, the staff will book the appointment, and then notify the tradesperson (e.g., the installer), who, having been notified, should then write the appointment into their diary. The only way for new customers to make enquiries is by email and by telephone, and the telephone is rarely answered, as there are no dedicated members of office staff. Approximately 90% of enquiries are made by telephone. The use of a customized ‘answerphone greeting’ message detailing the enquiry process helped to encourage potential customers to leave a message, however, the growth of the business has introduced a flaw with this process. Because glazing, roofing and building do not typically receive many emergency enquiries, using an answerphone message had been sufficient for handling calls. However, with the introduction of plumbing services, the number of emergency enquiries is expected to increase as problems such as gas leaks typically pose a bigger potential threat than a broken window or a leaking roof, for example.Existing customers might also ask for further work or further quotations, see below, by contacting staff directly, or by asking them for further information when they are on-site. However, in such cases a further issue is that these contacts might not be logged in any way. **Quotations** Quotations are carried out as follows. A tradesperson already at the customer property will take measurements and then calculate the price. *(Calculating the price is itself an issue, as this tends to be done manually, and even for simple jobs can be time consuming and brings the potential for error. Clearly, with expansion into new areas, such as building, some quotes in the future might require more complex pricing involving bills of quantities, and, the checking of prices for particular items, and these, more complex quotes are considered as tenders).* For planned quotes they will send the price to the office staff member, who will then create a quote document. There is no template for this and each quote is produced individually, though the company likes to think that word-processed quotes look professional. This document is sent to the customer and a copy is put on file too. For an unplanned quote, the tradesperson fills out a quote pad form, and then gives this quote to the customer. Most quotes are made on a quotation / invoice duplicate pad, and a copy is also stored for such quotes. The main issue with the current quotation process is the existence of two separate ways to quote the two types of customers and the use of paper for this purpose. Having two methods not only causes inconsistencies in the process but it has often resulted in a backlog of work needed to word process the quotes for business clients and planned work. Quotes are given to the customer by the appropriate means and a copy stored in the office file for future reference, which is the beginning of a paper record of the job. Manually typing up each quote is very time consuming and the method of posting quotes to customers requires expense on printer consumables and stationery.**Tenders**Large quotes may come direct from customers to the office, and if so, the office staff will register the request and send it to a manager. The manager will either take on the tender or will ask a tradesperson to make the estimate. To produce these tenders often involves producing lists of materials and sub-contracts that would be required in the tender. They must then use these lists to obtain estimates (sometimes from other suppliers) for materials and sub-contracts. This will then be added in to the tender, along with the companies labour and other charges to form part of the full quote. Alternatively, the tradesperson, perhaps on-site, receives the request directly. In this situation, they are allowed to quote for the work, often taking it on themselves, and inform the office of the quote. However, this tends to bypass the normal checking and introduces the possibility of quotes not sufficiently considering all aspects of the job. As with normal quotes, tenders are word-processed, to look professional, but there is no particular template to draw these up, or to support the calculations. **Expenditure**Sometimes goods can be delivered and then invoiced to the company and sometimes they require ‘upfront’ payment. In each case a receipt would be stored, and ideally such expenditure would be connected to a quote. Clearly, it is important that there is some way of connecting the receipt of parts to the paper receipt. There is no expense tracking process in place, besides storing receipts in the office file. This suits the client as the majority of receipts are paper and those that are electronic are printed off. However, it is the knock on effects that this method has on VAT returns that is the real problem (see below). **Invoices**For homeowners or unplanned the tradesperson will fill in an invoice pad form and give the invoice to the customer. On receipt of payment, they will then pass a copy of the invoice, and the payment to the office, who would store a copy of the invoice. For planned and business customers the tradespeople will notify the office of the completion of the job. The office will create an invoice, again this is word-processed but there is no template, and then send the invoice to the customer. A copy of the invoice would also be stored on receipt of payment. Invoicing follows the same kind of procedures as quotations and as a result is subject to the same issues of inconsistencies in the process, heavy use of paper and a slow and expensive method of delivery for Business & Planned customers.**Payments**Once customers have a payment request, payments are either by cash, cheque or occasionally BACS. Clearly, depending on the method, payment can simply be given, or sent to the company, either directly, or via the tradesperson or directly taken by office staff. On the whole payment is on completion, but certain, typically larger, jobs may require part payment or payments in phases. Staff must complete a ‘paying in form’, and then for cash or cheques, the payment must be ‘banked’. Customers cannot make payment for work by card and are restricted to cash, cheque or, very occasionally, BACS payments. Although this still provides the customer with options, the most common payment methods are not always suitable and are certainly not the most efficient. Cheques are usually not banked for up to five days after their issue, and even then it can take up to five working days for the funds to clear which is, in total, ten days for payment to be completed. There is also the potential for a cheque to bounce which delays payment even further. Cash is also not banked for up to five days after receipt of it, but once it is had been banked the funds are available immediately.**VAT**VAT is triggered by the need to produce quarterly returns. Invoices are collected and sales summed. Similarly, receipts are collected in order to be able to then sum the expenses. These figures then allow for the calculation of VAT due. This is a very long-winded process that involves using a calculator to both sum the invoices and the receipts for goods, but once done a VAT return is submitted to HMRC. HMRC will then, or subsequently, request payment, and once payment is made, will issue a receipt. Staff will print this receipt, and store the receipt in the files. They will periodically, e.g., annually get the files and pass these to the accountant. Because of the paper records of customer invoices and expense receipts, the amount of time taken to perform a VAT return is absurd. Adding up each individual invoice and receipt using a calculator often takes he client around two to three hours to complete.There are issues associated with the lack of IT that have prompted attention. The heavy use of paper and physical copies of documents, combined with the lack of IT means that the overall amount of equipment carried by each member of staff is amplified and contributes to the disorganization. **Other issues noted, though not described in full narrative****Catalogues** Because of the variety of services offered, there is a need to carry catalogues to show customers their options from different suppliers or brands. This variety comes with its downsides though, such as carrying around a plethora of catalogues, cluttering the van, causing confusion and difficult to find. Primarily, these catalogues are used to show the customer an image of a particular piece of equipment or material and the installer is usually able to provide the supporting details without reference to a catalogue. **Taking Measurements** When taking measurements of work to use in pricing or ordering parts, drawings are commonly made on offcuts of paper and are susceptible to misinterpretation or being misplaced, which could slow down a job. There is a feeling that this does not always provide the right image for the company too. **Overall Issues**The overwhelming issue that is common amongst all processes is the use of paper. Paper is used for almost everything, from sketching drawings of work to be completed to invoicing. This heavy use of paper results in vans and offices being cluttered and disorganized, making it hard to find the right information. Also, using only paper documentation is risky as accidental damage is possible and there are no backups should the originals have been damaged. Furthermore, searching through a folder full of hundreds of quotes or invoices is time consuming, should a customer’s invoice need to be retrieved. The enquiries process is inefficient to cope with the expected growth and there is no way to handle the expected rise in emergency enquiries expected as a result of the introduction of plumbing services. Customers are also largely limited to telephone enquiries and the client almost always has to rely on the customer leaving a message as they are rarely in the office to answer. These issues mean that the client is not catching all of the potential enquiries as customers will sometimes choose not to leave a message. The pace of admin type work is slow and this is mainly because of the paper dependency and manual process of generating documentation. Invoices and quotes for major clients are typed up individually without the use of a template which, given the level of IT skills of the workforce, takes a considerable amount of time. This all takes time away from money making business activities, which have either lowered revenue or taken up a significant amount of the business owners’ time outside of working hours, depending on when the work is completed. It is often the case that managers will work late into the evenings catching up with paper work, which is harmful to their work-life balance. Email is underutilized. Occasionally communications are made using email though typed quotes and invoices are always printed off and posted to the recipient. Not only does this take significantly longer than email, but also it is also more expensive. Customer details are recorded but there is no way to reliably ensure all members of staff take details in the same format; this often leads to incomplete customer details or missing pieces of information. Although details are collected, without being consistently complete and in a structured format they are of little use. |

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* If you are experiencing technical problems when submitting online then **you must contact the IT Service Desk immediately and before the deadline**. Call **01202 965515** off-campus, or **65515** on-campus. It’s best to call, especially if it’s close to the deadline. You can log a problem online too: <https://bournemouth.service-now.com>
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	+ Year 1: Your Academic Advisor (AA)
	+ Year 2: Your Programme Leader
	+ Year 4: Your Programme Leader

together with appropriate supporting evidence (e.g. GP note) normally before the assignment deadline. Further details on the procedure and the exceptional circumstances form can be found at <https://www1.bournemouth.ac.uk/students/help-advice/looking-support/exceptional-circumstances>. Please make sure you read those documents carefully before submitting anything for consideration. |

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