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| Department of Software Engineering  Mehran University of Engineering and Technology, Jamshoro |

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| Course: Software Quality Engineering (SW426) | | | |
| Instructor | Naeem Ahmed | **Assignment Type** | Complex Engineering Problem |
| Semester | 8th | **Year** | 4th (Final) |
| Assignment Date | 25-06-2020 | **Submission Deadline** | 15-08-2020 |
| Assessment Score | 10 Marks |  |  |

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| Complex Engineering Problem - Characteristics | | |
| 1 | Depth of knowledge Required | 🗹 |
| 2 | Range of Conflicting Requirements | 🗹 |
| 3 | Depth of Analysis Required | 🗹 |
| 4 | Infrequently Encountered Issues Involved | 🞏 |
| 5 | Beyond codes/standards of practice | 🞏 |
| 6 | Diverse groups of stakeholders with widely varying needs involved | 🗹 |
| 7 | Interdependence (high level problems including many component parts/sub-problems) | 🗹 |
| 8 | Have significant consequences in a range of contexts | 🗹 |
| 9 | Judgement (Require judgement in decision making) | 🗹 |

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| Problem Description |
| A grocery store located in a city requires a point of sale and inventory management project for 15000 local items and 2500 imported items. The number of items may increase or decrease by time. Customers can place order and get the items from the store by the identification code provided at the time of order placement and can pay at store or online payment method.  You are asked to build a web-based application (project) for the grocery store. Perform all necessary SDLC phases to deliver different artifacts (e.g., SRS, Functional Specification Document, Design, development/code) for the project and also perform SQA activities throughout SDLC lifecycle to design test cases and execute those test cases, etc. Prepare a complete report representing all such SDLC activities and also answer the following questions.  1. What are the constraints/demands related to the design of this project.  2. How will you reduce the number of test cases?  3. If storeowners allow home delivery of items, then what changes will be required in the project?  4. How much time will be required to complete the project in true spirit? Provide detailed phase-wise response.  Note:- Do not build complete project, instead develop a working prototype. Submit the report along with code of working prototype. |

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| Rubrics (Each Rubric 2 Marks) | Assessment | | | | | Marks |
| Unacceptable  (0) | Poor (0.5) | Acceptable (1) | Adequate (1.5) | Proficient (2) |
| R1 Identification of constraints/requirements/demands | 🞏 | 🞏 | 🞏 | 🞏 | 🞏 |  |
| R2 Engineering knowledge (standards) | 🞏 | 🞏 | 🞏 | 🞏 | 🞏 |  |
| R3 Identification of various Testing techniques | 🞏 | 🞏 | 🞏 | 🞏 | 🞏 |  |
| R4 Design of Test cases | 🞏 | 🞏 | 🞏 | 🞏 | 🞏 |  |
| R5 Implementation of Test cases | 🞏 | 🞏 | 🞏 | 🞏 | 🞏 |  |
| Total Marks | | | | | |  |