**LAB MANUAL**

**ACADEMIC YEAR: 2014-2015**

**DEPARTMENT: Computer Engineering Date:16 /06/2014**

**CLASS: T.E SEMESTER: I**

**SUBJECT: Employability Skills Development Lab**

**INDEX OF LAB EXPERIMENTS**

|  |  |  |
| --- | --- | --- |
| **Sr. No** | **Name of Assignment** | **Revised on** |
| **1.** | Identification and Formation of student groups preferably demonstrating Gender co-existence.  -----------------------------------------------------------------------------------  Identification of real life client/customer who wants to get product developed. (Demonstrate Verbal communication, Team building and leadership qualities)  Requirement must be given by real life entity as Institution, Society, Company, Business person. Requirement may be given by Staff members, department / Institute level committees.  Proposed solution must include use of BIGDATA, WSN and OS. Use hardware component (for example sensors, android devices, LED, displays, mechanical devices as stepper motor, scanner, camera, biometric device etc.) Demonstrate use of group discussions in problem solving.  **OR**  Problem Statement : A customer wants to run Unique-identity project for the residents bearing its nationality as national-resident, NRI, NRE and migrated along with personal information, gender information with family tree(Maternal and paternal), photographs, finger-prints, crime records, earning methods, Bank Accounts, marital status, relationships, Diseases, Medical Insurance details, Social Contributions, Driving license and RfiD tags for self owned Vehicles.  The customer wants to find and monitor using reports the status of ethical values in the society, growth in wealth, poverty line issues, health issues, increase/decrease in crimes and family issues and such more issues. | **16/06/2014** |
| **2.** | Verbal communication with customer to identify requirement. Performing requirement gathering. Use open source modern tools to perform requirement gathering and requirement analysis.  Demonstrate Communication and gestures, Responsibility, Verbal communication skills.  **OR**  UID project: communication and with lab teacher. | **16/06/2014** |
| **3.** | Performing requirement Identification. Creating requirement documents using latex or using open source tools for requirement gathering and identification.  Creating the problem statement from requirement document.  Approval of problem statement from lab teacher.  **OR**  UID project requirement gathering, requirement identification, creating requirement document. | **16/06/2014** |
| **4.** | Creating Mathematical model of proposed system.  Identify and justify open source software, programming languages, open source databases to be used.  Identify and Justify hardware, sensors and devices to be used.  Demonstrate Application of knowledge, Creativity.  **OR**  UID project : Proposed system | **16/06/2014** |
| **5.** | Demonstrate use of advance programming, documentation, presentation and communication Tools  Create Design document of a proposed system.  **OR**  UID project system design document. | **16/06/2014** |
| **6** | Conducting community service at local government school. Conduct training session for students. Create awareness about using internet and cyber security. Demonstrate Social Responsibility. | **16/06/2014** |
| **7** | Application or product developments.  Use one of the following Software development models  1 Waterfall model  2 Spiral model  3 Iterative and incremental development  4 Agile development  5 Rapid application development  6 Code and fix  **OR**  Use any one of above Software development models for UID project. | **16/06/2014** |
| **8** | Demonstrate use of 64-bit Databases Oracle, MySQL, MongoDB, CauchDB or equivalent Open Source Databases in selected project. | **16/06/2014** |
| **9** | Demonstrate technology and group leadership skills, administrative skills and responsibilities in teamwork.  Application / Product development - Review 1.  Use innovative presentation tool.  Review 1 to be conducted lab teacher and by customer. | **16/06/2014** |
| **10** | Demonstrate following skills to solve difficulties / challenges in current project.  Posting a question on the blog or forum,  writing and maintaining a mailing list mails,  Writing outputs or logs using PostBin tools or equivalent,  use of GIT(refer to github Web site) for revision control or open source equivalent. | **16/06/2014** |
| **11** | Implementation of review comments submitted by customer and by lab teacher. Demonstrate learning of quantitative skills to implement comments in review 1. | **16/06/2014** |
| **12** | Application / Product demonstration - Review 2.  Use innovative presentation tool. | **16/06/2014** |
| **13** | Preparation of User manual  Preparation of Application / product developer document. | **16/06/2014** |
| **14** | Product delivery- demonstration. –  Demonstrate use of open source product delivery procedure/mechanism. | **16/06/2014** |

*Head of Department Subject Coordinator*

*(Computer Engineering) (Prof.Pravin R. Patil)*

**ASSIGNMENT No. 1 Revised on 16/06/14**

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| --- | --- |
| TITLE | **Project Group formation and Problem statement identification** |
| PROBLEM STATEMENT /DEFINITION | Identification and Formation of student groups preferably demonstrating Gender co-existence.  -----------------------------------------------------------------------------------  Identification of real life client/customer who wants to get product developed. (Demonstrate Verbal communication, Team building and leadership qualities)  Requirement must be given by real life entity as Institution, Society, Company, Business person. Requirement may be given by Staff members, department / Institute level committees.  Proposed solution must include use of BIGDATA, WSN and OS. Use hardware component (for example sensors, android devices, LED, displays, mechanical devices as stepper motor, scanner, camera, biometric device etc.) Demonstrate use of group discussions in problem solving.  **OR**  Problem Statement : A customer wants to run Unique-identity project for the residents bearing its nationality as national-resident, NRI, NRE and migrated along with personal information, gender information with family tree(Maternal and paternal), photographs, finger-prints, crime records, earning methods, Bank Accounts, marital status, relationships, Diseases, Medical Insurance details, Social Contributions, Driving license and RfiD tags for self owned Vehicles.  The customer wants to find and monitor using reports the status of ethical values in the society, growth in wealth, poverty line issues, health issues, increase/decrease in crimes and family issues and such more issues. |
| OBJECTIVE | To learn use to group discussions in problem solving  To learn administrative skills and responsibilities in teamwork |
| S/W PACKAGES AND HARDWARE APPARATUS USED | Latest version of 64 Bit Operating Systems Open Source Fedora-19 or Higher equivalent with LAMP tools or Windows 8, with Multicore CPU equivalent to Intel i5/7 4th generation onwards supporting Virtualization and Multi-Threading, 8 GB RAM, 500GB/1TB HDD 32/64 bit LATEX PDF with title colors and content beautification as per the template and revisions published by the BoS time-to-time. |
| REFERENCES | **http://en.wikipedia.org/wiki/Requirements\_analysis** |
| STEPS | Refer to student activity flowchart |
| INSTRUCTIONS FOR  WRITING JOURNAL | Use 32/64 bit LATEX to create document of project group details and requirement described by customer. |

**ASSIGNMENT NUMBER: 01**

**AIM: Project Group formation and Problem statement identification**

**OBJECTIVE:**

To learn administrative skills and responsibilities in teamwork.

To learn use to group discussions in problem solving

**To learn to** Use 32/64 bit LATEX to create document of project group details and project requirement described by customer.

**LEARNING OUTCOME:**

Ability to understand need of technical competence required for problem solving

Ability to understand employers’ requirements

**Pre requisite**:

**http://en.wikipedia.org/wiki/Requirements\_analysis**

**THEORY:**

**Description of requirement provided by customer.**

Use 32/64 bit LATEX to create document of project group details and requirement described by customer.

**ASSIGNMENT No. 2** Revised on 16/06/14

|  |  |
| --- | --- |
| TITLE | **Requirement gathering.** |
| PROBLEM STATEMENT /DEFINITION | Verbal communication with customer to identify requirement. Performing requirement gathering. Use open source modern tools to perform requirement gathering and requirement analysis. Demonstrate Communication and gestures, Responsibility, Verbal communication skills. Create Requirement document.  OR UID project: communication and with lab teacher. |
| OBJECTIVE | To learn use of advance programming, documentation, presentation and communication Tools. To learn use to group discussions in problem solving. |
| S/W PACKAGES AND HARDWARE APPARATUS USED | Latest version of 64 Bit Operating Systems Open Source Fedora-19 or Higher equivalent with LAMP tools or Windows 8, with Multicore CPU equivalent to Intel i5/7 4th generation onwards supporting Virtualization and Multi-Threading, 8 GB RAM, 500GB/1TB HDD 32/64 bit LATEX PDF with title colors and content beautification as per the template and revisions published by the BoS time-to-time.  List of Free Open Source Requirements Management Tools.  OSRMT (Open Source Requirements Management Tool).  aNimble This is a free requirements management software that is a follow-on project to OSRMT listed above.  rmtoo : This is a free requirements management tool targeted at developers |
| REFERENCES | **http://en.wikipedia.org/wiki/Requirements\_analysis** |
| STEPS | Refer to student activity flowchart |
| INSTRUCTIONS FOR  WRITING JOURNAL | Use 32/64 bit LATEX to create document of project group details and requirement described by customer.  Describe using use Free Open Source Requirements Management Tools.  Describe requirements identified. |

**ASSIGNMENT NUMBER: 02**

**AIM: performing Requirement gathering by verbal communication with customer and creating requirement document using open source requirement management tools.**

**OBJECTIVE:**

To learn use of advance programming, documentation, presentation and communication Tools.

To learn use to group discussions in problem solving.

To learn to use Free Open Source Requirements Management Tools for requirement gathering.

**LEARNING OUTCOME:**

Ability to understand need of technical competence required for problem solving

Ability to understand employers’ requirements

**Pre requisite: http://en.wikipedia.org/wiki/Requirements\_analysis**

**THEORY:**

**Description of requirement provided by customer.**

**Requirement identification.**

**Creating requirement document.**

**Using Free Open Source Requirements Management Tools.**

OSRMT (Open Source Requirements Management Tool).

aNimble

This is a free requirements management software that is a follow-on project to OSRMT listed above.

rmtoo : This is a free requirements management tool targeted at developers.

**ASSIGNMENT No. 3** Revised on 14/12/12

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| --- | --- |
| TITLE | **Requirement Analysis.** |
| PROBLEM STATEMENT /DEFINITION | Performing requirement Identification. Creating requirement documents using latex or using open source tools for requirement gathering and identification.  Creating the problem statement from requirement document.  Approval of problem statement from lab teacher.  **OR**  UID project requirement gathering, requirement identification, creating requirement document. |
| OBJECTIVE | To learn use of advance programming, documentation, presentation and communication Tools  To learn use to group discussions in problem solving  To learn technology and group leadership skills  To learn administrative skills and responsibilities in teamwork |
| S/W PACKAGES AND HARDWARE APPARATUS USED | Latest version of 64 Bit Operating Systems Open Source Fedora-19 or Higher equivalent with LAMP tools or Windows 8, with Multicore CPU equivalent to Intel i5/7 4th generation onwards supporting Virtualization and Multi-Threading, 8 GB RAM, 500GB/1TB HDD 32/64 bit LATEX PDF with title colors and content beautification as per the template and revisions published by the BoS time-to-time.  List of Free Open Source Requirements Management Tools.  OSRMT (Open Source Requirements Management Tool).  aNimbleThis is a free requirements management software that is a follow-on project to OSRMT listed above.  rmtoo : This is a free requirements management tool targeted at developers |
| REFERENCES | **http://en.wikipedia.org/wiki/Requirements\_analysis** |
| STEPS | Refer to student activity flowchart |
| INSTRUCTIONS FOR  WRITING JOURNAL |  |

**ASSIGNMENT NO. 3**

**AIM: Performing Requirement Analysis.**

**OBJECTIVE:**

To learn use of advance programming, documentation, presentation and communication Tools. 

To learn use to group discussions in problem solving.

To learn quantitative skills

**LEARNING OUTCOME:**

**Ability to understand need of technical competence required for problem solving**

**Ability to understand employers’ requirements**

**Pre requisite: http://en.wikipedia.org/wiki/Requirements\_analysis**

**THEORY:**

**Creating requirement document.**

**Describe requirement given by customer.**

**Describe requirement gathering from given description.**

**Perform requirement identification.**

**Use open source requirement management tools.**

**Create problem statement from requirement identified.**

**Creating document Approval of problem statement from lab teacher.**