**REQUIREMENT ANALYSIS:**:

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| Key concepts | Explore concepts significance and relevance |
| * The main role of requirement analysis is to understand the customer needs and develop a system according. Generally it is an end-user product with the features they want. * The main sources of requirements should be very clear. This helps in understanding during the process of developing the system.The sources are the main part in the requirement analysis. * Once you have completed analysis record everything into a document so that it can be useful for addressing the people who is in need for your product. | * **Functional requirements-**These define the product’s external features that are visible from the end user’s perspective.These include components that are executed together to make a complete system. * **Operational Requirements** – These define the process that are kept running in the background to make the system running. * **Technical Requirements** – These define the technical stuff that are related to the system and the language that is used to implement. * **Transitional Requirements** –These are the steps taken so as to implement and maintain the system. * Although many requirements are important, some are more important than others, and budgets are usually limited. We have to identify the resources and make a efficient system. * Carry out the brief understanding of the project and its consequences also,so that they can be easily get rid of unwanted errors as well as a great system is implemented. |

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| Find Real life contexts | Find Interdisciplinary connections |
| * Make sure that your list is complete: remember, end-users for a product or service might all be in one division or department, or they might be spread across various departments or levels of your organization * Each person considers the project from his or her individual perspective. You must understand these different perspectives and gather the different requirements to build a complete picture of what the project should achieve. * When interviewing stakeholders, be clear about what the basic scope of the project is, and keep your discussions within this. Otherwise, end-users may be tempted to describe all sorts of functionality that your project was never designed to provide. If users have articulated these desires in detail, they may be disappointed when they are not included in the final specification. * You might want to find existing use cases for similar types of systems or services. You can use these as a starting point for developing your own use case. | * Interaction with each end-user or stakeholder should be done individually. The interaction points out the the specific needs as well as each person's specific views. * Sit down with the key stakeholders and resolve any conflicting requirements issues. You may find Scenario Analysis helpful in doing this, as it will allow all those involved to explore how the proposed project would work in different possible "futures". * When using these two methods, it's a good idea to keep asking "Why?" for each requirement. This may help you eliminate unwanted or unnecessary requirements, so you can develop a list of the most critical issues. * Conduct group workshops. This helps you understand how information flows between different divisions or departments, and ensure that hand-overs will be managed smoothly. |

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| **Engage in critical thinking** | **Technology, Tools, Techniques** |
| * Critical thinking is the objective analysis and evaluation of an issue in order to form a judgement.This type of thinking,we cannot get easily and it needs years of practice and determination. * Our system has an idea that involves critical thinking.We are having the available cabs section in the system so that user can directly book cabs along with the other person.Hence thereby reducing the cost of the fare. * The eight elements of critical thinking are purpose of the project, question at some issue, point of view from different perspective, data involved, concepts, assumptions, implications, and conclusion of the system to be implemented. These eight elements tie directly into the requirements analysis function in the software engineering development process. * Point of view is essential during the requirements analysis procecess.software engineers need to consider every requirement from the view of each stakeholder. By doing so they will be able to foresee any possible conflicts of interest prior to designing the system | * Requirement analysis is the process of getting the resources of all the hardware,software,people effort needed for the process.These generally involve the skills needed for the system to be running. * Requirements analysis involves communication between the customers and the system for the specifications required for them and also to not mess with the system features that are at failure. * Facilitated Application Specification Techniques (FAST)   FAST encourages the customer as well as developers to implement the system.  They work together for identifying the new ideas that can be connected with existing and make the system effecient. |

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| Plan project management | Project specification and project brief |
| * Set up the project and getting started to work. * Informal meeting between us the members. * Conference video calls,mobile technology for keeping connected between us. * Follow up meeting and to speed up the process since one can take more time but the other may not. * Making notes about certain module/component for the company’s future. * presentations between the team members. * Good internet connection for our resources online. * Issues are monitored regularly. | * Believes in the functionality achieved by the good resources that contribute towards the actual implementation. * Develop the model which is the more attracted by the customers. * Establish the connections in which the entire system will work in the desired way. * Creating the environment that the system works and identifying the resources. * Create a seperate abstract model rather than jumping into the actual implementation of the system. * Get the written data content that is required for the system implementation. |

**DESIGN:**

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| Key concepts | Explore concepts significance and relevance |
| * Now by this time we have to complete the requirement analysis and now move towards the journey of system design. * Our project is not so small but still we can implement the system.It only takes analysis of the requirement analysis and step towards the designing part. * The alternatives include the technical skills,choice of feature in the system in the design process. The design process is the most important phase and here you make the choice for constructing the system in less cost and efficient way. * The Design phase gives the answer that how you are actually building the complete system. | * Identifying the objective of the system is the main thing in this phase as it leads to make the design using a sequence of small steps. * During this time rough ideas are generated by the team members and put them into the paper or some kind of storage devices.These ideas are thoroughly revisited to make them the best of all time. * The solution is "logical" because it exists on paper or in a design tool. This logical solution is then passed to the Construct Phase, where the logical solution is turned into a physical solution * The care is taken for the people who are developing the system design.All can have their own ideas in design phase and then recreate the system once again or do the same end product taken from the requirement analysis. |

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| Real life contexts | In disciplinary connections |
| * According to the survey, the largest percentage of the survey’s 214 participants (27%) indicated that concept designs are captured electronically in the form of 3D data, however following closely another 21% of participants indicated that concepts were more often shared via hand-drawn sketches on paper. * According to the American Association of Mechanical Engineers, nearly 75% of the manufacturing cost of a typical product is committed by the end of the conceptual phase, meaning that only 25% of a product’s cost can be influenced by decisions made after this time. * The PTC survey, which was conducted in July 2011, backs this statistic, with results showing that 61% of participants saying that 61% of a product’s total development costs are fully committed at this stage of design. Another 43% say that 71% of the total product cost is fixed by the time they exit the conceptual design phase | * Programming involves the systematic study of the system and logic behind the implementation.The thing is that we have to be systematic in the process of building components/modules. * Programmer researches current projected document,security,methods of building a specific module.This results in a comprehensive description of the necessary components of the construction project. * This is the time for getting the resources for components i.e is the external factors influencing the system.The external factors for our project may include these topics such as the cab drivers , stakeholder , etc.. |

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| Engage in critical thinking | Technology, Tools and Techniques |
| * Design thinking refers to design-specific cognitive activities that designers apply during the process of designing. * Design thinking minimizes the uncertainty and risk of innovation by engaging customers or users through a series of prototypes to learn, test and refine concepts. * Develop the strong understanding of web technologies,customer-system relationship.Search for new innovators,creators,developers. * How to connect more deeply with customers to discover opportunities for innovation. * analysis is the process of dividing the problem into sub components.This components/sub modules are designed using a particular way to complete the complete design. * Experimentation using the prototyping,building sample code,design using the tech stuff. | * The productivity of the design engineers are daily increasing in number since the world is full of internet.Internet is the main source for web designing and the resources are available for free. * Function Oriented  1. Design is decomposed into set of interacting units where each unit has clearly defined function.This is also called as design analysis. 2. minimizes the algorithm of the system but also maintain the end output for the customer.  * Web Designing:   1.The basic layout of a webpage can be done using HTML and CSS.Bootstrap is the latest software that is available so as to make the website interface look interactive.  2.Customer’s details are the important details for the system with personal login’s.These data should be stored,retrieve,manipulate for further use in the system.so a Database is also connected to the system and it is most important component of it.  3. There is a backend and frontend for the system.The extra interactive features can be done using php,javascript,etc.Dynamic web pages are more popular these days than the static ones. |

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| Plan project management | Project specification and project brief |
| * The Business Owner may participate in the Preliminary Design Review. * The Project Manager is responsible and accountable for the successful execution of the Design Phase. The Project Manager is responsible for leading the team that accomplishes the phase activities and deliverables. * The team members are directed by the upper power that is the product manager.They have to make a product that is described by the product manager. * The Contracting Officer is responsible for the documents that belong to software design life cycle.He is also subjected under the product manager. * The critical partners involves into the design process if there are any conflicting ideas that do not meet the objectives of product that is mentioned at the requirement analysis. * Conducting the formal review of the higher architecture can improve the system design process.conformance with the Enterprise Architecture and prescribed design standards is also needed. | * System Design Document   Document the results of the system design process Describe how the system with satisfy requirements   * System Security Consensus Document (SSCD)   Define the system’s security architecture, security policies, risk assessments, and security tests Consolidate all information for the C&A   * Security Plan   Describe planned activities to control access and protect the system and its information |

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| Key points | Explore concepts significance and relevance |
| * The basic role of this phase is to convert designing into code using the programming language decided in designing phase. * Code and do testing for the pieces /modules/components. * Module testing occurs in this phase to make the complete system work without any failures(major failure). * This takes the longest time in the software life development cycles. * The input to the testing phase . * The code is developed and how it is measured so that it is required less time to the process of the testing and other future process methods. | * Before begin the actual coding, you should spend some time on selecting integrated development environments for coding,debugging,recode,testing with code,etc.. * Before actual writing code, some standard should be defined, as multiple developers going to use the same file for coding.for example the google sheets that can be used for sample code writing. * During development developer should write appropriate comments so that other developers will come to know the logic behind the code. * So it always makes sense to spend time on coding phase. Here all developers write their own code and merged with other developer’s code to make sure that all modules developed by different developers interact with each other as per expectations. * In perspective of business it takes less cost in coding than during the other phase such as testing,end product. * Developing relatively small systems where system can always be implemented from scratch with reasonable cost when maintenance gets out of hand. |

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| Real life contexts | In disciplinary connections |
| * Always give credit to the source. You can do this just with a comment in your HTML, CSS or JavaScript, as appropriate, giving the URL of the website you got the idea, trick or code from. Failing to do so would be a violation of the honor code. * Pages validate (HTML and CSS) * Testing with console can become handy for the webpages. * Clear navigation structure and all features work correctly. * All code properly executed. * Appropriate comments (must be at top of each page, but also within CSS, JavaScript, and HTML) * Proper nesting of code (CSS, HTML, and JavaScript. * Using php or javascript to make the web pages dynamic since there will be no duplication of code. * Appropriate ALT attributes for all images * All pages have title fixed for them and using php syntax we can make title fixed for our project Go-safe. | * For the purpose of course your web page is enough for testing with google chrome browser but if you want your system to run on different browsers then we should come to see our project after the semester. * This check-up is not intended to be a guarantee of a perfect grade! It is simply a way to help you identify some common defect.. Still, we hope you'll find it valuable to have this checklist and the opportunity for a check-up. * Documentation of your project is one of the most important work in your project.It helps other people who see your work,understand and make the existing idea into a extra ordinary idea. * Also Documentation helps you in case if you are again interested in the project to make some changes already or still develop the system. |

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| Engage in critical thinking | Technology, Tools and Techniques |
| * State the goals and objectives of the product system.Gather and organize the data so that they can be helpful. * explicitly assess the meaning and significance of information you give them, * demonstrate that they understand concepts,Identify consequences. * consider implications and consequences,examine things from more than one point of view, | * Front-end expertise includes the framework,user-interface,design of the website and special interactive alerts as well as the javascript animation. * Back-end expertise includes server side programming,database design,information retrieval,data organising,manipulation,etc.. * As website today are database driven and knowledge of them is very essential and also dynamic pages are preferred for our system and it is the latest web design technique. |

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| Plan project management | Project specification and project brief |
| * **Communication Plan** – This type of communication is needed between the stakeholders and the team members for meeting the objectives and goals of the system. * **Risk Management Plan** – Identify the common risks involved in the system such as common failures,crashing of the system modules,undeliverable of the customer choice of feature,,etc.. * **Work Breakdown Schedule (WBS)-**   This is visual representation of the work divided between the team members so as to make the large work into simple methods. | * A functional specification determines what exactly the target system must do and the requirements for its implementation. * ll requirements should be thoroughly defined and documented. The general system requirements and other documents created in the first phase serve as input here * Depending on the nature of the system, creating a UI prototype in this phase may be crucially important for the success of the project. * Besides the project requirements analysis,system design the process for developing need to taken care of. |

**TESTING:**

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| Key points | Explore concepts significance and relevance |
| 1) Software testing is done to uncover errors that were made during designing and construction. It includes test planning, test case design, test execution, data evaluation and collection.  2) It involves alpha testing, beta testing, class testing.  3) Project manager, software engineers, and testing specialists develops the strategy for software testing.  4) Levels of testing: unit testing, integration testing, system testing, and acceptance testing.  5)Debugging is one of the most important section of testing.It includes re code for the module that is failed in the testing process. | * Testing tells about how to conduct the tests, how we should develop a plan for testing, and when to involve a customer. * The early stage of testing is very easy as it needs only some failures to detect.There is no system without failures.The efficiency cannot be 100% . * Testing often require more project effort than any other SE action. If it is conducted irregularly, unnecessary effort is expended, time is wasted, and even sometime errors remain undetected.Therefore a systematic procedure for testing should be done. * With the help of test specification document we can know the types of tests and specific testing steps that will be conducted. * Testing is a way of answering questions like how it works, how we can overcome any problem. When we take sports we require strategy for team work. Testing helps in making strategy and in foundation of tactics. |

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| Find Real life contexts | Find Interdisciplinary connections |
| * HP Quick Test Professional, IBM Rational Functional Tester, Selenium, Test Complete, Load Runner are some of the tools used for testing. * The tests can be non-functional or functional. Testing design techniques includes: Cause Effect Graphing,   Boundary Value Analysis, Equivalence partitioning. * Some of the norms of software design are: there will be communicational, automotive and general. * Policies of testing: Definition of Testing( take care that software fulfills its requirements), Description of the test process(all test plans should be written in accordance with company policy*)* Test Evaluation(it includes effect on business of finding a fault after the product gets release) Quality Level to be achieved(no faults before the products release) outstanding high severity Approach to TestProcess Improvement(after project completion, project review meetings should be held)**.** * Testers mainly deal with 2 type of customers (companies).They are manufacturing and service based companies. * . | There is no one particular way to test a software. Not only we should understand various features of technology, but also we have to understand how that technology is applied as per different set of users and different perspectives. This requires technical skills, communications skills and reasoning skills. By this we can say that software testing is an interdisciplinary process. |

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| **Engage in critical thinking** | **Technology, Tools, Techniques** |
| There are mainly 2 different kind of thinking. System 1 thinking is helpful for making quick decisions about effortless matters while System 2 thinking is helpful where software testers want to focus their efforts on. This can be termed as critical thinking.  Critical thinking helps testers in remaining conscious about the software they're analyzing and when to start test runs and the nature of the defects they uncover.  It suggests, until and unless testers have a firms understanding of overall mission, they shouldn't conduct test.  Testers shouldn't take anything for granted. It is the job of the testers to notice the defect or performance issue. By this the underlying problem can be noticed, otherwise which would have gone unnoticed. | * HP Quick Test Professional, IBM Rational Functional Tester, Selenium, Test Complete, Load Runner are some of the tools used for testing. * Testing design techniques includes: Cause Effect Graphing,   Boundary Value Analysis, Equivalence partitioning. * There are mainly 3 type of testing: white box testing (in this tester is completely aware of internal working of the app), black box testing (in this tester is unaware of internal working of the app), grey box testing (in this tester has limited knowledge about internal working). * There are many type of technologies used for testing. The ones that create the most numerous and complex testing challenges are the most important technologies in the software quality .They are big data testing, mobile devices and cloud computing. * Testing [data warehouse systems](http://searchbusinessanalytics.techtarget.com/feature/Big-data-vendors-should-stop-dissing-data-warehouse-systems) and [big data](http://www.computerweekly.com/opinion/Leveraging-the-benefits-of-Big-Data) requires a whole new set of skills, so it has become challenging for software testers. The [data warehouse testing](http://searchsoftwarequality.techtarget.com/tip/How-to-test-a-data-warehouse) is the transform, [extract and load process](http://searchdatamanagement.techtarget.com/definition/extract-transform-load). The amount of data is huge, and it has been taken from many sources. Moreover, testers are challenged to work without a user interface. |

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| Plan project management | Project specification and project brief |
| * Project plan management is one of the most important part. Inaccurate project planning can have a serious impact on the on the overall quality of the product as a whole and test execution of the system. * Firstly, we analyze the requirements and thenScope of testing, designing the test strategy in accordance with the scope, and the test effort and team defines the test schedule and then Identify [test metrics](http://www.softwaretestinghelp.com/software-test-metrics-and-measurements/). These are the steps for effective plan and management of testing. * It includesdistribution and allocationof tasks, Resource management,and tools usage for reporting. | Test plan reflects the entire project testing approach and schedule.  Generally, a test plan includes **tasks** and **objectives**, testing strategy (Unit Testing, System and Integration Testing, Performance and Stress Testing,User Acceptance Testing), test schedule, dependencies, risks/assumptions, tools and approvals. These are the specifications for testing. |

**SOFTWARE PROJECT MANAGEMENT:**

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| Key points | Explore concepts, significance and relevance |
| * Software project management starts with a set of activities that are known as project planning. * Software project planning mainly consists of five activities. They are scheduling, estimation, risk analysis, quality management planning, and change management planning. * It helps in the estimation of determining how much money, resources, effort, and time it will take to make a software-based product or system. * Software project managers using information from software metrics data and project stake holders mainly do the software project management. | * Software project management helps in estimating the description of the scope of the problem. Then the problem is decomposed into a set of smaller problems, and by using experience as guides and historical data, each problem is estimated. * Problem risk and complexity are considered before a final estimate is made. * It also helps in estimating the tasks that we need to perform, how much we were about to spend, and the time line for the work to be managed. |

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| Find real life contexts | Find inter disciplinary connections |
| * Software project management mainly focus on production aspects of software development, than the technical aspects, such as software tools. * It helps in understanding progress reports for stakeholders, projection and time tracking, percentage complete and quality assurance. * It also helps in communicating updates with local and distributed items, feedback, assignments and shared task lists. Identify and resolve projects obstacles, appraise financials and evaluate performance. | * Inter disciplinary features of software project management : * Provides a critical, detailed review of software development processes and models. * Introduces key risk-reduction models and the basic software development process. * Explores recent swings in software process models and examines the subject of process improvement. * Explain how software tools influence problem-solving. * Describes how the focus of development has shifted to business contexts from technical. * Focuses on the economics and role of costs in software engineering. |

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| Engage in critical thinking | Technology , Tools and Techniques |
| The diversity of new approaches and techniques of contexts and clients in the software industry, requires software developers to have the ability to judge correctly and to discriminate successfully among these. Traditional approaches in software engineering education, are not appropriate in equipping students with these diverse and unusual skills. | Tools used:  Microsoft Visual Studio Team Foundation Server  Lean Kit  Plan box  Telluric Team Pulse.  Techniques:   * Agile Software Development * Crystal Methods * Dynamic Systems Development Model. |

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| Plan project management | Project specification and project brief |
| * As the software industry grew very quick, and computer companies quickly recognized that when compared to hardware production and circuitry, software production is of low cost. To manage new development efforts, firms established project management methods, but problems occurred during test runs, especially when confusion occurred between the delivered software and the user specifications. To avoid these problems, software project management methods focused on matching user requirements to delivered products. This can be done by software models like waterfall model, spiral model and agile model. * As the industry has become advanced, analysis of software project management failures has shown that the following are the most common causes: involvement of insufficient end-user, Poor communication among developers, customers, users and [project managers](https://en.wikipedia.org/wiki/Project_manager), Unrealistic or unarticulated project goals, Poor reporting of the project's status. | * Software project management is main important part of planning and leading software projects. * The main purpose of [project planning](https://en.wikipedia.org/wiki/Project_planning) is to recognize the scope of the project, [estimate](https://en.wikipedia.org/wiki/Estimation_in_software_engineering) the [work](https://en.wikipedia.org/wiki/Work_(project_management)) involved, and create a [project schedule](https://en.wikipedia.org/wiki/Gantt_chart). * Project planning starts with [requirements](https://en.wikipedia.org/wiki/Requirements_analysis) that defines the required software to be developed. Then the [project plan](https://en.wikipedia.org/wiki/Project_plan) is developed to report the [tasks](https://en.wikipedia.org/wiki/Task_(project_management)) that will lead to completion. * Project controlling and monitoring involves status meetings to gather status from the team. When there is a need for changes, [change control](https://en.wikipedia.org/wiki/Change_control) is used to keep the products up to date. |