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| **Key Concepts** | **Explore concepts' significance and relevance** | **Establish relevance, make sense and meaning -Find real-life contexts** | **Establish relevance, make sense and meaning -Find interdisciplinary connections** | **Engage in critical thinking** | **Technology, tools and techniques** | **Plan project management** | **Project specification and sketch** |
| Requirements analysis, also called requirements engineering, is the process of determining user expectations for a new or modified product. These features, called requirements, must be quantifiable, relevant and detailed. In software engineering, such requirements are often called functional specifications.  Requirements analysis involves frequent communication with system users to determine specific feature expectations, resolution of conflict or ambiguity in requirements as demanded by the various users or groups of users, avoidance of [feature creep](http://searchcio.techtarget.com/definition/feature-creep) and documentation of all aspects of the project development process from start to finish.  Requirements analysis is a team effort that demands a combination of [hardware](http://searchcio-midmarket.techtarget.com/definition/hardware), software and [human factors](http://searchsoa.techtarget.com/definition/human-factors) engineering expertise as well as skills in dealing with people. | If requirement analysis phase is not completed properly or in a sluggish manner then there might be inconsistencies in the final product.  **1.** During requirement gathering, client is not able to provide more details or not sure exactly what is required. If requirements are not proper or not completely covered then there is no point of analysis.  **2.** Irregular communication between the engaged parties. Whenever there are more than one parties involved and they don’t interact regularly at the requirement analysis phase, then there is a possibility of disagreement in later phases of development.  **3.** Timelines are not achievable. Client is always in a hurry to see the final product so they directly or indirectly plan unrealistic timelines and finally receive a half-baked product.  **4.** When the clients receive their final product, by then, expectation changes and they want to introduce more new features which were not part of earlier documents. | The implementation view of the requirement views presents the real world realization of processing functions and information structures.  Requirements analysis helps to understand, interpret, classify, and organize the software requirements in order to assess the feasibility, completeness, and consistency of the requirements. Various other tasks performed using requirements analysis in real world are listed below:-  **1.** To detect and resolve conflicts that arise due to unclear and unspecified requirements.  **2.** To determine operational characteristics of the software and how they interact with the environment.  **3.** To understand the problem for which the software is to be developed.  **4.** To develop an analysis model to analyse the requirements in the software.  Software engineers perform analysis modelling and create an analysis model to provide [information](http://ecomputernotes.com/fundamental/information-technology/what-do-you-mean-by-data-and-information) of 'what' software should do instead of 'how' to fulfil the requirements in software. | Interdisciplinary teaching helps advance critical thinking and cognitive development.  It helps students tolerate or embrace ambiguity.  **1.** Configuration management. **2.** Infrastructure as Code.  **3.** Documentation.  **4.** Software Quality assurance (SQA).  **5.** Project management. **6.** User experience.  Above are the supporting interdisciplinary connections. | Critical thinking is one of the most useful modes of thought for analysing and solving complex problems encountered during requirements analysis.  Compare analysis techniques to select the technique(s) that will best support your critical thinking, understanding, and problem solving.  The eight elements of critical thinking are purpose, question at issue, point of view, data, concepts, assumptions, implications, and conclusions. These eight elements tie directly into the requirements analysis function in the systems engineering process. | Computerized development tools include:-  **1.** [Compiler](https://en.wikipedia.org/wiki/Compiler).  **2.** [Debugger](https://en.wikipedia.org/wiki/Debugger).  **3.** [Profiler](https://en.wikipedia.org/wiki/Profiling_(computer_programming)).  **4.** [GUI designer](https://en.wikipedia.org/wiki/Graphical_user_interface_builder).  **5.** [Modelling](https://en.wikipedia.org/wiki/UML_tools).  **6.** [IDE](https://en.wikipedia.org/wiki/Integrated_development_environment).  **7.** [Build. automation](https://en.wikipedia.org/wiki/Build_automation)  **8.** [Release. automation](https://en.wikipedia.org/wiki/Application_release_automation)  **9.** [Testing](https://en.wikipedia.org/wiki/Category:Software_testing_tools).  **10.** [Computer Aided Software Engineering](https://en.wikipedia.org/wiki/Computer_Aided_Software_Engineering) (CASE) tools.  **11.** [Database Management Systems](https://en.wikipedia.org/wiki/Database_Management_System) (DBMS).  **12.** [Fourth-generation programming languages](https://en.wikipedia.org/wiki/Fourth-generation_programming_language).  **13.** Code generators.  **14.** Object-oriented techniques. | The requirement analysis has been done.  Immediate deliverables are SRS document along with the feasibility report. Also a requirements traceability matrix also has to be submitted.  PISE-PBL Sub Project 3 will be form September 25-28. | As mentioned above.  ---------do-------- |