2. Literature Review:

Serious and in detail assessment of existing research is called as a literature review. It is a short explanation about researcher area which can be stated by anyone reading the research document and concludes the aim of document. It is an analytical overview of previous work. If the actual aim, objectives and findings are evaluated in short summery then it is called as good literature review.

2.1 Nabil Mohammed Ali Munassar et al., (September-2010), say after the study and comparison of five software development technologies, that every development model has some of the good and concrete practices for project development life cycle. At the same time some of the practices are not showing the appropriate results. According to authors selecting a development model is dependent on size and complexity of the project. These traditional models are old and not suitable in new requirement era. Authors suggest making use of good practices from the existing methods and forming a new discipline.

2.2 Nazir Iqbal et al., (April-2013), introduce new approach called as Self Directed Programmer for improving the performance of development using XP. With the traditional methodology, developer works as single unit for major of the project work. So it is important to work on improving the capability of the developer.
The Extreme programming follows the strategy of Pair Programming. But here according to authors the performance of XP will be improve after adopting the PSP strategy. And also there is no need to follow onsite customer strategy of XP.

2.3 ALI AKBAR et al., (2010), say that the major issue with XP approach is to manage the requirements of development in the distributed environment. The distributed and the XP are currently the widespread methodology for the development which helps to produce frequent, low cost software without compromising the quality. According to authors the requirement management is complex is current development situation because of the environment of the Distributed projects and variation in expectations of the users. The authors also suggest using RM model with XP to improve the efficiency of the software development.

2.4 Anthony J H Simons, (June-2005), suggests to use some output driven successful testing methods for projects with XP instead the use of regression testing. The author says that, the XP’s continuous testing approach eliminated the need of formal methods. These papers demonstrate the example of ample test collection used with objects. The method for testing suggested by author demonstrates that there is no need of regression testing. Author is confident that suggested model for testing promises of no failure in the system with repeatable quality performance after using with XP.

2.5 Seema Malhotra et al., (July-2012), compares the popular software development models for their efficiency in project development. The authors analyze the six development models; the result of this may help the software development manager to select the appropriate development model as per the need of their project. According to authors every development model has some plus points as well as some negative points in implementation strategy need to carefully select the model of our purpose.

2.6 Hamid Mcheick et al.,(2009), cover the practices followed in XP, and also suggest some improvement in the implementation of XP. According to authors XP is very popular among the software organizations because of its promise to deliver the fast track solution with quality within time.
According to authors XP shows shortcoming in communication among the XP groups because of the segregation in the groups. The authors suggest having a leader of the group and must be shuffled for each activity during the project life cycle to eliminate the problem of lack in communications. They demonstrate this with the help of mathematical model.

2.7 W.K.S.D Fernando et al., (NOVEMBER-2013), discussed about the need and usefulness of agile technologies in the software development. According to authors the main concern of project development is about the cost of project, time taking for development and to deliver the quality solutions. Authors introduce agile development which can solve the problem of industry by providing the quality solutions. According to authors the Agile Methods needs very less amount of documentation and majorly concentrated on code development. Agile methods are the solution for current changing situations and the requirement fulfillment.

2.8 Marcus BITZL, (2008), discusses the usefulness of Extreme programming in education system to encourage the students to learn software development approach. According to author some of the XP practices very attractive for the students, so they learn to implement it with great interest. It is observed by the author that in practical sessions students are easily grasping the XP development approach with enjoying the work. XP uses some different approach to implement Testing, Design and refactoring by making it simple to chive with quality. This simplicity attracts the students and increases their confidence level.

2.9 John Karn et al., (November-2008), describe relationship of the developers and the customers during the Extreme Programming project life cycle. As XP follows the practice known as “on Site Customer”, customer is present all the time with the development time, so it is very important to develop a positive relationship between them. Authors observe few teams working with XP approach. After the observation and the feedback got from the developer and customer, author’s state that the XP practices improves the communication with clients, expectation of the clients will be minimized, and improves the client satisfaction.
2.10 Kai Stapel et al., (2008), discuss about the agile development approach XP and its attractive implementation features. According to authors, it is not possible to implement XP practice properly in university education because lack of time for completing the course. As XP can only be well understood with practical approach and it needs enough time.

Authors praise the On Site Customer practice as one of the most useful XP approach. As the XP more emphasis on practical approach author used a dedicated timing for implementing the project with XP, which turn into great successful learning experience for students.

2.11 Venkata Vinod Kumar Padmanabhuni et al., (April-2012), elaborate the effectiveness of Extreme Programming Practice, called as Pair Programming. According to previous research, results of implementing pair programming are excellent. Authors showed the positive impacts in the academics also. The authors used qualitative and quantitative approach while implementing a new approach with pair programming.

Authors suggest having at least one experienced member n pair to improve the productivity of the work. Authors also suggest conducting pair programming practice in industrial level.

2.12 Charles Poole et al.,(December 2001), discuss about the effectiveness of XP during the maintenance cycle. Recently due to drastic increase in the demand the pressure is increased on the software industry.

According to authors, there must be more specific approach should be implemented along with the pair programming practice in XP. Authors also suggest implementing automatic defect tracker system to help the testing team and to produce defect free software's.

2.13 Frank Maurer et al.,(FEBRUARY-2002), explore about the fast track software development with XP, specifically for online applications. According to authors the big industries are outsourcing the modules from small scale industries where the developers are not well trained and also not follow the software development methodologies. The web applications are currently in demand with continuous changes.
According to authors agile methodology like XP is able to deal with above pressure with adopting software engineering disciplines, with improved speed and quality. If we want to get success with XP, the all 12 practices must be followed.

2.14 Akbar Saeed et al.,(July-2013), compare the RAD model XP for their respective adoption by industry. According to authors, in comparison with RAD, XP is not highly adopted by the industry. Developers are attracted towards the extreme programming but not for it’s all the practices. The main theme of XP, Pair Programming is also not easily adopted by the developers.

According to authors, XP process needs some more maturity. The success of implementing XP in industry is also depends upon the senior management acceptance. So XP processes must need to improve the managerial aspect of its methodology.

2.15 Gul Ahmad et al.,(April-2014), elaborate the current need of software industry to adopt new development approaches to deal with continuous change requirement. To resolve the issues related change and quality, industries started to adopt the agile technologies such as XP, scrum, RUP. It is already proved that the agile methodologies are very much usefulness in change handling and improving the quality of the product.

To improve the software development process authors suggest new hybrid concept XSR. This will be more productive than any other methodology present today.

2.16 Manisha Giri,(October- 2013), attempts to show the importance of XP’s pair programming practice by applying it on developing Ranker algorithm.

According to author Pair programming already showed its effective existence in industrial environment in terms of better-quality and increased team sprit with compact cost and faults.

Author says that there is a drastic improvement in product development after applying the XP’s Pair programming. Author discusses about Programming Aptitude test which used to rank the developers in terms of time and effort to show throughput. Author suggests having Pair of Experienced and Fresher programmer to improve the productivity.
2.17 Radmila Juric,(16 June-2000) elaborates the different aspects of XP methodology by exploring the different practices suggested in this approach. Author selected XP for study because many different approaches from the traditional methodology. According to author there is some common approach in RUP and XP. According to author XP model is having some serious drawbacks, if ignored then it may cause harm to structural design of the software.

The author claims that XP practice implementation without guidance may be confusing and the rapid rate to activities for prototyping is also become problem for developers to maintain the consistency. Also the practice Metaphor is nor well explained and understood by the developers.

2.18 MUHAMMAD DANYAL ASHRAF et al., (31 December-2011), discuss on new testing approach to Extreme Programming. Authors say that, many companies are adopting agile methodology; the XP is one of them. The communication approach of XP with customer makes it easy for developer to incorporate the changes easily and frequently with gaining the desired quality. To have maintained the quality, continuous testing is become mandatory.

According to authors, XP’s current testing approach is having drawback as it care about only test execution, there is no concern about test efforts which is more effectible factor on projects quality. To solve this problem, authors propose Test Execution Effort Estimation Model (TEEE), as a solution of problem regarding smooth and quality testing with XP.

2.19 Boby George et al., (2003), evaluate the pros and cons of testing approach adopted in XP practices. The XP’s test before code strategy is well implemented by using incremental unit tests.

According to author the Test driven approach is more suitable for quality development because of its high rate of success but may take some more time to execute. Authors discuss that, Traditional methodologies of development are not having suitable environment for testing, so use of TDD is more adequate to use for development as it will improve the quality of testing.
2.20 **Therese Clara V, (June-2011),** discuss about similarities and differences between CMM and XP methodologies. According to authors, XP gained popularity in last few years, at the same time industries identified the relevance of process maturity using the models like CMM. So if the current situation demands that these models needed to be used simultaneously, then it becomes mandatory to identify the inter relationships between these two models.

Authors say that CMM can be used with XP with adjusting some of the practices of it, but CMMI also having some lacking that needed to be fulfilled with another agile methodology. Project that are carried using agile methodologies are difficult to examine for quality development approach.

2.21 **MALIK HNEIF et al., (October-2009),** examine the effect of agile methodologies in development approach carried out by industries. According to authors, agile models provides the fast track, quality solution’s, in current changing environment.

Authors further discuss that agile models are not well suited for every kind of projects, specifically when hurdles of there for communicating with the customer and also when the development team having more fresher’s. Still comparing the results the success ratio, the agile models are best suited for current development era.

2.22 **Imran Ghani et al., (2013),** present the facts from previous researches about the security aspects of XP in development. According to authors, the XP delivers the products with speed within the time limit. Authors say that there is no special provision for security check in XP practices so it can tend to have serious defect in product. Only at the time of integration XP takes little care about security that is not sufficient for long run.

For overcoming the current drawback related to security, authors suggest to implement new security practice in XP model. If XP model is implemented with security practice it will improve for reliability and establish it as the approved model for software development in current scenario.

2.23 **Helen Sharp et al., (2007),** discuss about blending of pairs participated in the projects designed using XP approaches. According to authors the experienced XP teams are having mutual bonds between them while on work which caused to increase in
productivity of the products. The main advantages of these teams are strong communication and coordination.

The mature XP teams also showed the successful implementation in distributed projects. The reason behind that every member of team is aware about every activity going in project. Authors support their statements by giving the reference of previous studies in the same context.

2.24 Sanjay Goel et al.,(2010), say that the software engineers have to waste there maximum time to ask the details to other programmers as in traditional approach every programmer doesn’t have knowledge about what is going in other part of project. The agile methodology like XP works with the practice of high communication strategy like daily meetings which initial looks time consuming but at the end comes out as time saver.
Authors suggest that in pair of XP one member should act as driver and other must act as guide. Also it is needed provide proper, pressure less environment for the development.

2.25 Ravinder Singh et al.,(2014), discuss about the study carried out previously about available models for building the projects. The project management is a very tedious task to carry out as it encompasses many different dependent and independent tasks. It is very complex activity. The environment for project making must be sound from inside the organization as well as must be sound from the client’s side to produce a quality product.
Authors suggest having periodical training sessions of senior managers for selecting appropriate methodologies for their project as there are many options are available. Project manager must able to select cost efficient, time saving and quality approach as per need of their project.

2.26 Shahriar Mohammadi et al., (2008), discuss about the benefits of having the customer all the time during the development. If the customer is easily available for communication then it is well and good but in most of the cases it is not oblivious to have customer on regular basis with project management team.
Authors suggest having a ‘Project Management Team’, which will only responsible to communicate to active stakeholders of the project so that communication will not break. Sometime if needed then PMT will play the role of customer to achieve the continuity in the work.
2.27 Takaaki Goto et al., (2014), discuss the practical aspects of XP. Authors say that in software industry the large complex projects are carried out using traditional development models and for other projects the agile models can be used. The old models takes care only the demands of the customer, so not ready to accept the change for new method. Authors propose a new approach EPISODE, which will improve efficiency and creativity in the software development. This new approach can be easily integrated with XP.

2.28 Juha Koskela et al., (2010) discuss the use of XP approach in specific migration project. Nowadays in changing environments agile models are most preferred in software development business, among the XP is rated at higher level. XP reduces the critical activities in project development. The most of the research with XP with carried out with small size database projects more research is needed in this regards. Also documentation for activities like requirement and design needs to be improved in XP practices.

2.29 Plamen Balkanski, (2003), discuss about QA issues in XP practices. Author says that XP model is a good technique for software development but still the is a scope of improvements. Author proposes to add new devoted QA practice in XP model which will be according to scope and measures of XP. Also the new Role QA manager will be needed to take care of QA activities in the project. According to author adding QA practice to XP may make the process of development slower but in result it will be accepted and applied for wide range and type of Projects.

2.30 Gerald DeHondt et al., (2007), discuss about practical approach of XP and its acute features in actual working. The authors state that, XP emerged as the solutions for the problems faced by old software development methodology. But few practices of XP are more difficult to implement than others. According to authors, XP is the best solutions available in current situation but if applied properly with all the practices. After investigation of failed XP projects it was found that the Projects were not implemented by following all XP practices.
2.31 **Martin Tomanek et al., (March-2015),** discuss the uses of agile methodology in project development. According to authors, the new SCRUM technique is most suitable in current development situation because of its ease and collaborative team functions. In SCRUM the security aspects of requirement are having low priority which can result in serious potential problem. The test automation is also the best part of SCRUM framework. One of the practice penetration testing, is also advisable to industries those implementing the agile software development.

2.32 **Laura Plonka et al., (2011),** discuss about the important aspect of XP practice pair programming. The study is conducted to check the interaction effects of Driver and Negotiator while working. Authors state that drivers are wasting their time on discussion without concentrating on their coding work. Also the programmers are not consistent on their roles, they switching their responsibilities frequently. But this shows that both of them are taking interest in work and it will have positive impact on development results.

2.33 **Ken Power, (2011),** says that the user story approach for collecting and understanding the requirement is having best results. Author introduces salient grouping feature which is able to collect all the user stories in compact manner. According to author salient grouping tactic very easy to use, cost saving and time reducing features. The grouping size for stories must be moderated to reduce the overhead on group which will be responsible to handle similar kind of stories.

2.34 **Siva Dorairaj et al., (2011),** discuss about the communication strategy used in agile approaches. While practicing agile approach it emphasis on, proper communication among all participants of the team. Sometimes the participants may be from the different locations then it becomes difficult to communicate properly and frequently. Authors suggest making use new innovative communication tools available today such as video conferencing to avoid this communication problem.

2.35 **Viktoria Gulliksen Stray et al., (2011),** explain the problem faced by the teams which are using agile approach for the development. Authors say that agile approaches are nowadays adopted by many companies also improvement in it going on. The main success factor of agile approach is strong teamwork which facing problems because in some the programmer is not involved in planning. As the aim of the project is not
communicated to programmer, he himself not found to attach with the work. The solution to this problem is to conducting the meetings on daily basis and providing the information about the project to every stakeholder.

2.36 Halley Wesley A.S. Gondim et al., (2011), elaborate the implementation of Extreme Programming approach to teach programming to the students. At the starting point if we teach them critical algorithm problems with XP, then it result in failure. Reason behind that students are not inspired to learn this with new methodology. Authors introduce the new XP teaching approach Task Board for teaching which will increase the acceptance of the students with improvement in code quality. This method also improves the problem solving skills of the students.

2.37 Nattakarn Phaphoom et al., (2011), discuss about the potential problems occurred because of wrong pair programming practice of XP. According to authors though pair programming is famous, it is having some drawbacks that needs to be tackled. It is observed that if defect is new the pair programmers can efficiently handle it; the result may vary in different situations. The compliance of XP varies project to project.

2.38 Rashina Hoda et al., (2011), introduce new concept of self-monitored group of programmer in agile models. It is very important that these groups must be supported by senior management to gain the expected results. The management must behave frankly, give flexibility of communication and have faith towards developers. It is observed that, giving power of decision making to agile teams results in huge remarkable success. Organizational environment is the crucial factor for the success of any kind of project.

2.39 Mali Senapathi et al., (2011), discuss about the problem faced for implementing agile strategy which is affecting the success of it. Authors accept the popularity and usefulness of agile methods. Some the agile practice need to be more simplified because developer facing difficulty to adopt it. Author’s emphasis on use of automation tools for testing when using the agile methods for development. Team environment and knowledge of team members, training, and communication flexibility are the key factors that may affect the usefulness of using agile methodology.
2.40 Ani Liza Asnawi et al., (2011), discuss about usability factor of agile models of development. Authors say that agile methods are mean to provide fast track solutions without compromising the quality within expected time. According to authors, the social aspects are more important in agile methodology than technical aspects. The communication strategy in agile development makes it more convenient to follow. Though few researches are showing bright side of agile methodologies but it was not yet worldwide implemented.