ASSIGNMENT 1 FRONT SHEET

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Student declaration

I certify that the assignment submission is entirely my own work and I fully understand the consequences of plagiarism. I understand that making a false declaration is a form of malpractice.

	Student's signature	*Anh*

Grading grid

P1	P2	P3	P4	M1	M2	D1	D2

☐ **Summative Feedback:**   ☐ **Resubmission Feedback:**

Grade:	Assessor Signature:	Date:

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I.   Introduction

Tune Source is a music company and they have relationships with three music industries: Megan Taylor, Phil Cooper and John Margolis. Currently, Tune Source has a website that helps customers find and buy CDs hosted by a service provider (ISP). Tune Source is trying to launch a website to help customers choose more when buying to increase sales of the company. Currently our company is cooperating with Tune Source to implement the project. And below will be a report on our SDLC model used for Tune Sources. Our report below includes descriptions of the SDLC model, the SDLC model related to the project, and the method of risk management. Discuss feasibility studies and selection of technical solutions for Tune Source.

II.   SDLC Model

1. SDLC Model Selection Four suitable model for project

1.1.   Waterfall model

According to (Dennis, 2014) Waterfall - is a layered SDLC model, in which the development process looks like a flow, gradually moving through the stages of analysis, projection, implementation, testing, implementation and support. This SDLC model involves gradual implementation of every phase altogether. This process is strictly documented and predefined with features expected for every stage of this software development life cycle model.
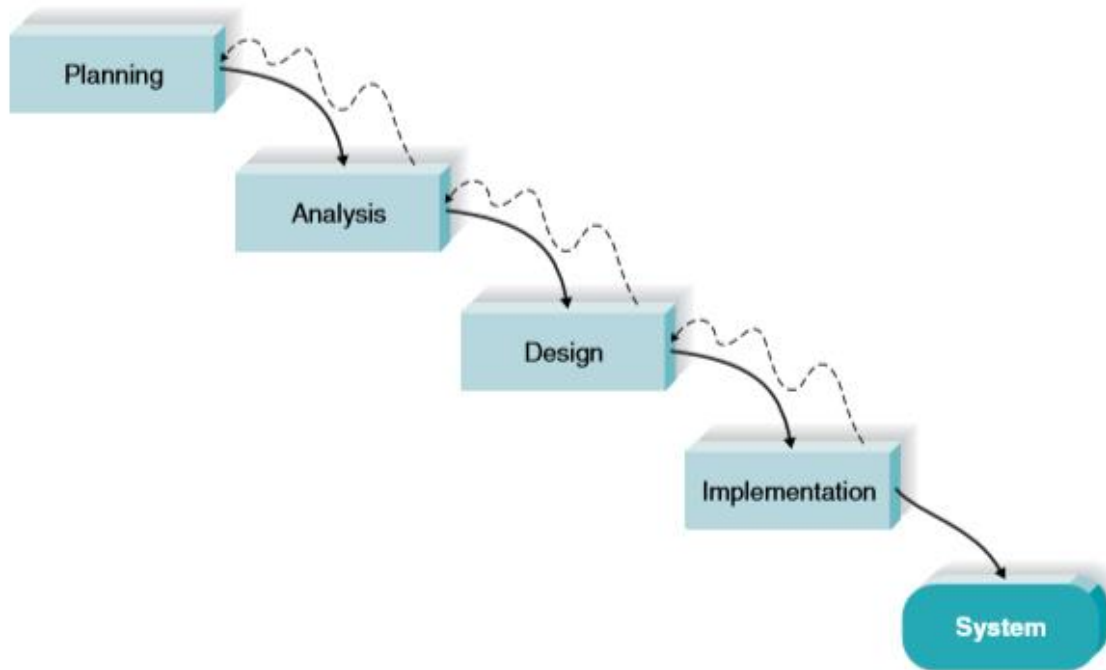
Figure 1. Waterfall mode (Dennis 2014)

Advantages	Disadvantages
Simple waterfall model, easy to understand and easy to use.	Cannot go back if there is a problem with the previous step
Easy project management	High risk and uncertainty
The project are developed step by step	The design part is shown at the end of the final stage only.
Key points in the development cycle are easily identified	Not suitable for long-term projects
Easily classify and prioritize tasks	The progress of the stage is hard to measure while it is still in development
	Integration is done at the end, without giving the option of predetermining the problem

1.2. V-model

According to (Dennis, 2014) The V-shaped SDLC model is an extension of the classic waterfall model and it is based on the relevant testing phase for all stages of development. This is a very strict model and the next phase only starts after the previous period. This is also called online verification and verification model. Each stage has current process control, to ensure that the transition to the next stage is possible.
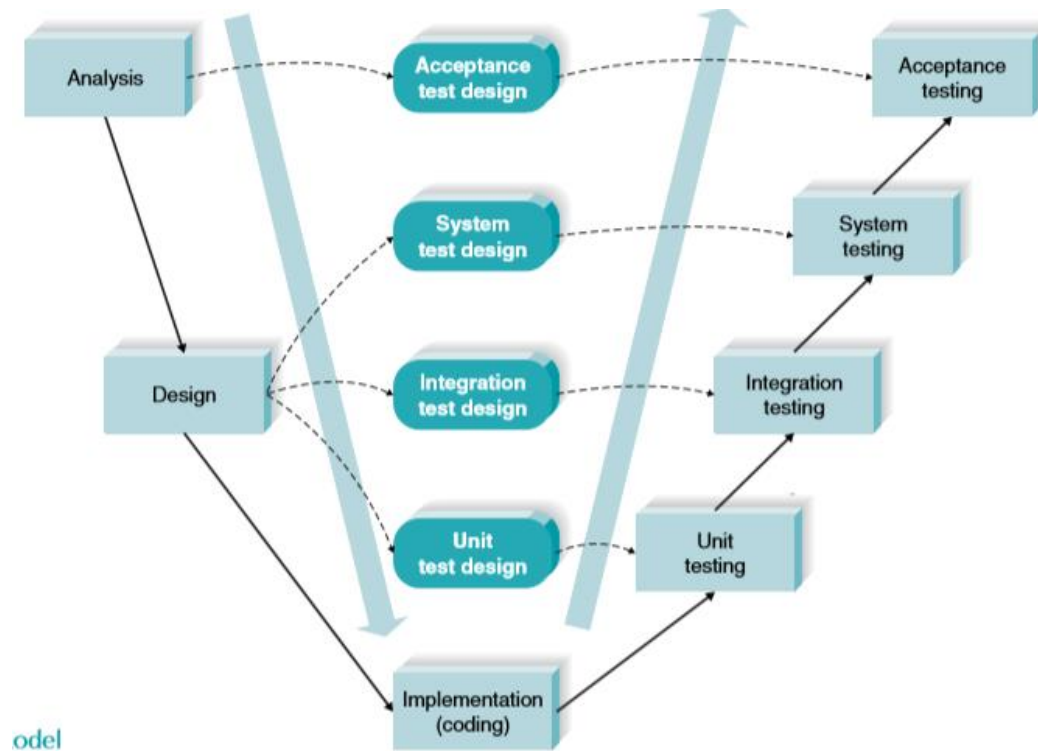
odel

Figure 2. V-mode (Denins)

Advantages	Disadvantages
Every phase of the V-shaped model has rigorous results for easy control	Lack of flexibility
Testing and verification takes place in the early stages	Not good choice for small projects
Good for small projects where requirements are static and clear	Relatively big risk

1.3.   Agile SDLC Model

According to (Dennis, 2014) Agile development is a group of programming methods focused on rationalizing SDLC. Most of the models and aerial documents have been removed; Instead, face-to-face communication is preferred. A project that emphasizes simple, iterative application development, where each iteration is a complete software project, including planning, requirements analysis, design, coding, testing, and testing, experience and document

Figure 3. Agile model (Dennis, 2014)

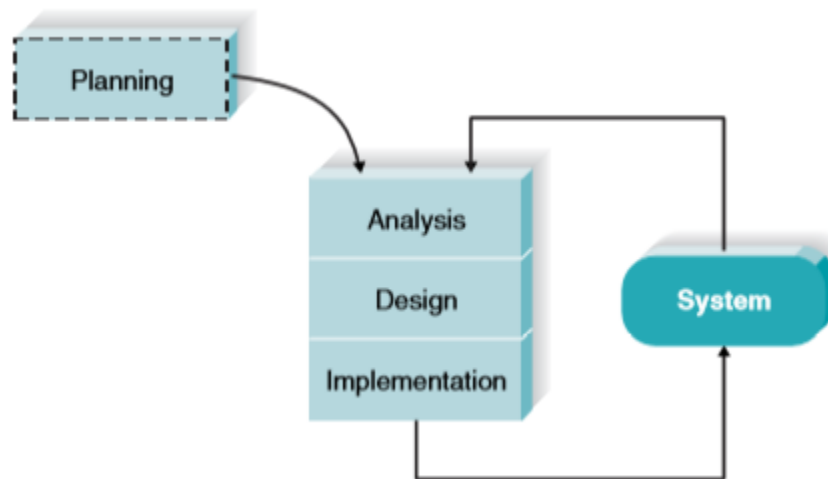| Advantage	Disadvantage
People and interactions are emphasized rather than processes and tools.	Difficulties in measuring costs in the end because of permanent changes.
The project is divided into short iterations and transparency	The team should be highly professional and customer oriented.
Risks are minimized by a flexible change process	New requirements may conflict with existing architecture.
Quick release of the first product version	With all modifications and changes, it is likely that the project will exceed the expected time.

1.4. Spiral model

According to (Dennis, 2014) Spiral model - is an SDLC model, combining architecture and prototyping in stages. It is a combination of iterative and cascading SDLC models with significant emphasis in risk analysis. The main problem of the spiral model - is determining the right time to take one step into the next stage. The proposed preliminary time frames are the solution to this problem. The transition to the next stage is carried out according to the plan, even if the work in the previous stage has not been performed. The plan was introduced based on statistical data, received in previous projects even from the personal developer experience.
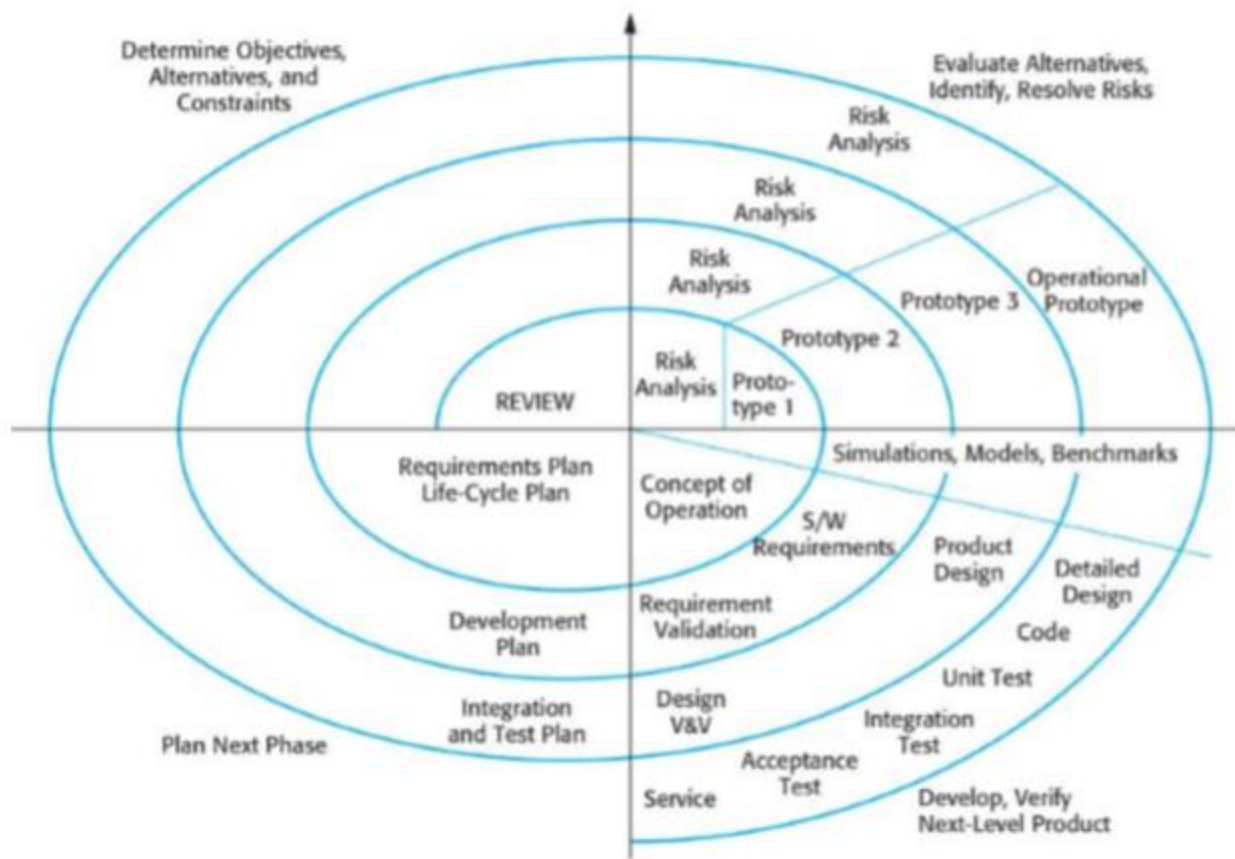
Figure 4. Spiral model (Dennis, 2014)

Each loop in the spiral is divided into four areas:

- Goals to set specific goals for that stage of the project are identified.
- Assess and minimize risks
- Development and validation After a risk assessment, a development model for the system was chosen.
- Planning The project is reviewed and the decision is made to continue with the next cycle.

Advantages	Disadvantages
Easily track projects and effective monitoring processes.	The project is costly because it involves analyzing many expensive risks.
The plan is close to reality.	Inefficient and successful for small projects.
Eliminate errors during project development.	

The complete model is converged from the advantages of other models.	

1.5. Prototyping model

According to (Dennis, 2014) The prototyping model is a system development method, in which a prototype is built, tested, and then repeated as needed until an acceptable result can be developed. The prototype is usually not a complete system and many details are not built in the prototype. The goal is to provide a system with overall functionality.
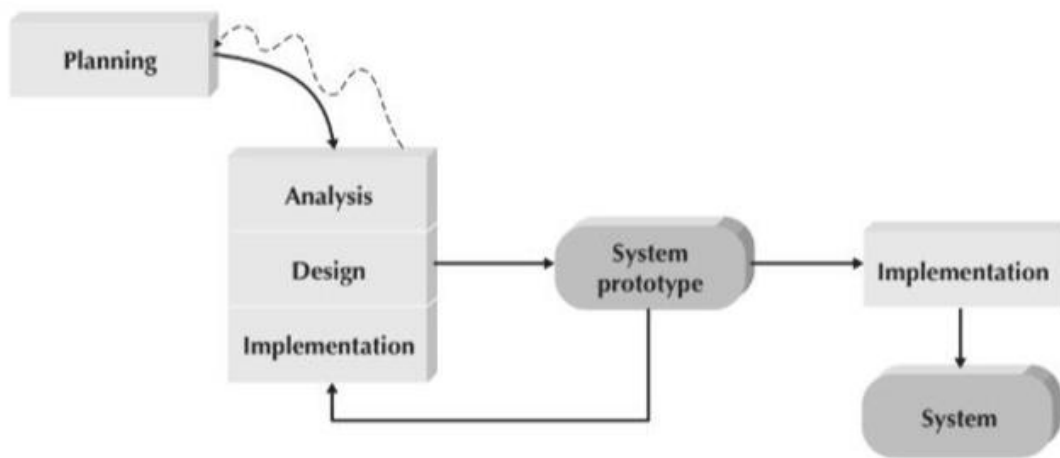
Figure 5. Prototyping model (Dennis, 2014)

Throwaway prototyping: This approach is used to develop systems or parts of systems where the development team has no system knowledge. Quick and dirty prototypes are built, verified by customers and thrown away. This process continues until a satisfactory prototype is built.

System prototyping: Prototypes are built not thrown away but evolved over time. The block diagram of the prototype model is shown in the image below. The concept of prototyping also leads to rapid prototyping and spiral modeling.

Advantages	Disadvantages
Users actively participate in development	Lead to the implementation and then repair of system construction.
The errors can be detected much earlier.	n fact, this method can increase the complexity of the system because the scope of the system may go beyond the original plan.

Faster user feedback is available resulting in better solutions.	Problem analysis is incomplete
Confusing or confusing functions can be identified	

1.6. Appropriate Development Methodology

Above, we introduced and discussed four SDLC models, each with its own advantages and disadvantages. Therefore, project managers should have a suitable method choice for their projects. Choosing an appropriate method for a project requires an appropriate development method.

Usefulness in Developing Systems	Waterfall	Parallel	V-Model	Iterative	System Prototyping	Throwaway Prototyping	Agile Development
With unclear user requirements	Poor	Poor	Poor	Good	Excellent	Excellent	Excellent
With unfamiliar technology	Poor	Poor	Poor	Good	Poor	Excellent	Poor
That are complex	Good	Good	Good	Good	Poor	Excellent	Poor
That are reliable	Good	Good	Excellent	Good	Poor	Excellent	Good
With short time schedule	Poor	Good	Poor	Excellent	Excellent	Good	Excellent
With schedule visibility	Poor	Poor	Poor	Excellent	Excellent	Good	Good

Figure 6. Methodology (Dennis, 2014)

2. Choose the SDLC model that applies to Tune Source

After analyzing, reviewing the project's criteria and defining a model for the project, we applied the Waterfall model because it will help us sequentially implement the stages of the project without having to Worry too much about changes in the project process. The waterfall model meets almost all the criteria of the Tune Source project application. After analyzing the advantages and disadvantages of the waterfall model, we can see that the model is suitable for this project.

❖ **Advantages and disadvantages of waterfall model with FitOn**

Advantages	Disadvantages
Simple, easy to understand and apply waterfall model for Tune Source.	Changing requirements in the project process will be a major challenge to the development of the system in the development process.

The requirements for the Tune Source project are clear, so the project can be implemented step by step without having to worry about system changes.	Errors in the system will cause many problems that affect the development of the project and slow down the development progress of the project.
The waterfall model has few constraints, thus saving costs for the project.	

III. Risk Management

1. Risk and risk management

According to (Dennis, 2014) Risk management is the process of identifying risks, assessing and minimizing risks so that risks from risks are minimal. In the IT industry, risk management is a very important part.

❖ **Some common risks specific to the project**

Risk	Description
Specification delays	Specifications of essential interfaces are not available on schedule
Size underestimate	The size of the system has been underestimated
CASE tool underperformance	CASE tools, which support the project, do not perform as anticipated.
Technology change	The underlying technology on which the system is built is superseded by new technology.

2. The risk management approach

According to (Sommerville, 2011) The risk management process is an iterative process that continues throughout the project.
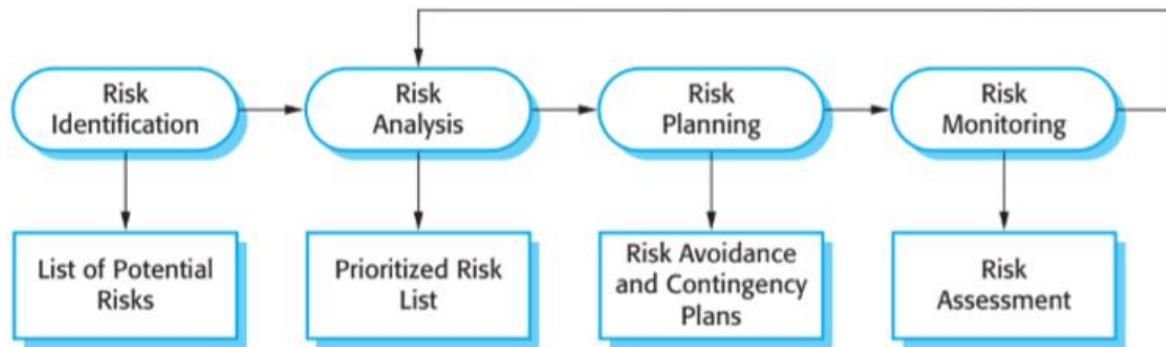
Figure 7. Risk management approach (Sommerville, 2011)

- **Identify risks**: Identify risks that may occur during project, product and business development or after project completion.
- **Risk analysis**: Assess and analyze the risks that may occur in the project, the consequences of these risks.
- **Risk planning**: Planning to address risks and provide ways to overcome the risks, or minimize its impact on the project.
- **Risk monitoring**: Regularly assess and test the risks that may occur and have your plans in place to minimize risks and modify these as you learn more about risks.

❖ **With the identified risks**

After identifying the potential and probable risks during the project development process, the project development team will evaluate and analyze in detail when the risks will occur at each level. It may happen. Next, the group will devise a number of plans to come up with solutions to promptly address the risks occurring during project implementation. This process will reduce the process of risk caused and retain the project development process and effective productivity of the team and not be delayed by unexpected risks that may occur.

IV. Feasibility Study

1. Purpose of Feasibility Study

According to (Dennis, 2014) Feasibility analysis is the process of determining whether a project should be implemented. Feasibility analysis includes techniques to assess three areas: technical feasibility, economic feasibility and organizational feasibility

2. Applying Feasibility

2.1. Definition

According to (Dennis, 2014) Technical feasibility analysis is, in essence, a technical risk analysis that strives to answer the question: " Can we build it?" .

Economic feasibility is determined by identifying costs and benefits associated with the system, assigning values to them, calculating future cash flows, and measuring the financial worthiness of the project.

The final feasibility analysis issue is the organizational feasibility of the system: how well the system ultimately will be accepted by its users and incorporated into the ongoing operations of the organization.

2.2. Applying Feasibility Criteria to the Project.

Technical feasibility

Standard	Quotation	Risk assessment
Risks associated with accessing and familiarizing music download applications	- The marketing party has no experience in online registration business model: medium high risk - There are many similar websites: high risk.	Moderately high
Risk regarding familiarity with the technology	- IT department has experience in operating website: low risk - Consulting is always available: low risk.	Moderately low
Infrastructure compatibility	- The digital and internet era is everywhere: low risk. - ISP can expand operations: low risk.	Moderately low
The project size	- Group of 10 or fewer: low-risk medium. - Enterprise user participation: high average risk. - The project time frame is somewhat important: medium risk	Medium
	Total	Medium Low

Economic Feasibility

Benefit of economic	Guess	Risk assessment
Profit yielded	- ROI over 3 years: 280% , increase -> high profitability - NPV over 3 years: $4,180,431, increase -> profitable - Break-even occurs after 0.17 years, short time ->Short time	Moderately high
Intangible Costs and Benefits	- Customer satisfaction - Place in the online music download market, improve the brand image of the group	Low
	Total	Medium high

Organizational Feasibility

Organizational risk	Guess	Risk
The support from the leadership	- The top executives of the company have a strong interest in the project. - Highly qualified marketing director	Very Low
User feedback	- It is expected that users will appreciate the presence of TS.	Low
	Total	Low

➢ **Conclusion about the feasibility of the project**

After project analysis and evaluation, the feasibility of the project after its completion and development is extremely strong. Technical development during project implementation, pricing and management are conducive to project development and productivity.

3. Technical solutions

3.1. Custom Development

According to (Dennis, 2014) Assuming that custom development or building a new system from scratch is the best way to create a system. Here, the company wants to be closely linked with the existing CD-based Web sales system, so the project needs complex programs that require multiplication. Everyone, FitOn

wants an environment built with technology and designed with modern techniques. Consequently, building a new system is a very effective method to meet this requirement.

The risks associated with building and developing a system from scratch can be quite high and risky and there is no guarantee that the project will always succeed.

3.2. Packaged Software

According to (Dennis, 2014) There are thousands of commercial software programs that have been written to serve many purposes. Therefore, multi-purpose development companies often use written packaging software instead of developing their own applications. Using packaged software will be installed quickly. Packaged software will often be a combination of multiple supply specialists created.

3.3. Outsourcing

According to (Dennis, 2014) Hiring an external vendor or developer to create a system will consume very little internal resources for the project. The pay model is much cheaper. Outsourcing can have many benefits for the new system. However, we will have to compromise on confidentiality of important information by creating a new system in the hands of others.

3.4. Evaluate solutions

Evaluation Criteria	Relative Importance(Weight)	Custom development using C	Score(15)	Weighted Score	Development of staff skills, design and website management using HTML,CSS and PHP	Score (15)	Weighted score	Packaged software product from FPT company	Score(15)	Weighted score
Technical issues										
Integration with existing systems	15	There is no possibility of matching the existing system	3	45	Ability to improve the existing system	4	60	The current system must work with a third party to be able to manage the data	5	75

								and design the website appropriately		
Experience with product	10	No experience using C	1	10	IT department has much knowledge in data management and digital music download	5	50	Have a lot of experience about the product	5	50
Develop new skills desired for the entire system	15	None	1	15	Continue to develop data management and distribution skills	3	45	None	1	15
Economic issues										
Cost	25	It costs a lot to train the team: $ 1,000 to develop the skills	1	25	- 500$ for develop skill.	5	125	700$ initial charge	2	50
Payback time	15	1,3 year	1	15	1 year	2	30	6 months	3	45

Organizational										
Demonstrated product in market	15	Program used by other retail music companies	5	75	Program used by other retail music companies	5	75	Program used by other retail music companies	5	75
Customizable interface	5	No	1	5	Easy to do	5	25	No	1	5
Total	100			190			410			315

After analyzing and comparing three system development solutions for Tune Source. The results show that the project development score for Tune Source in HTML is much higher than software package and C language development. Therefore, Web development for Tune Source with HTML, CSS and PHP is the most reasonable and helps the project. complete faster.

V.   Conclusion

The above is a report on SDLC models and risk management during project implementation and development and is suitable for the Tune Source project. Discuss feasibility studies and choose solutions and techniques to develop and accelerate the success of the project

References

Dennis. (2014). Systems Analysis and Design. In I. Hoboken: John Wiley & Sons, *6th ed.*

Sommerville. (2011). In B. Addison-Wesley., *Software engineering* (p. 9th ed).