UNIVERSITY of GREENWICH
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BTEC

ASSIGNMENT 1 FRONT SHEET

Qualification	**BTEC Level 5 HND Diploma in Computing**		
Unit number and title	Unit 9: Software Development Life Cycle		
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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	

Grading grid

P1	P2	P3	P4	M1	M2	D1	D2

❒ Summative Feedback:	❒ Resubmission Feedback:

Grade:	Assessor Signature:	Date:

Internal Verifier's Comments:

Signature & Date:

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I. Introduction

Tune Source is a company headquartered in southern California. Tune Source currently has a website that enables customers to search for and purchase CDs. Now they want to create some more functionality of the website following:

- Search for music in our digital music archive.
- Listen to music samples.
- Purchase individual downloads at a fixed fee per download.
- Establish a customer subscription account permitting unlimited downloads for a monthly fee.
- Purchase music download gift cards.

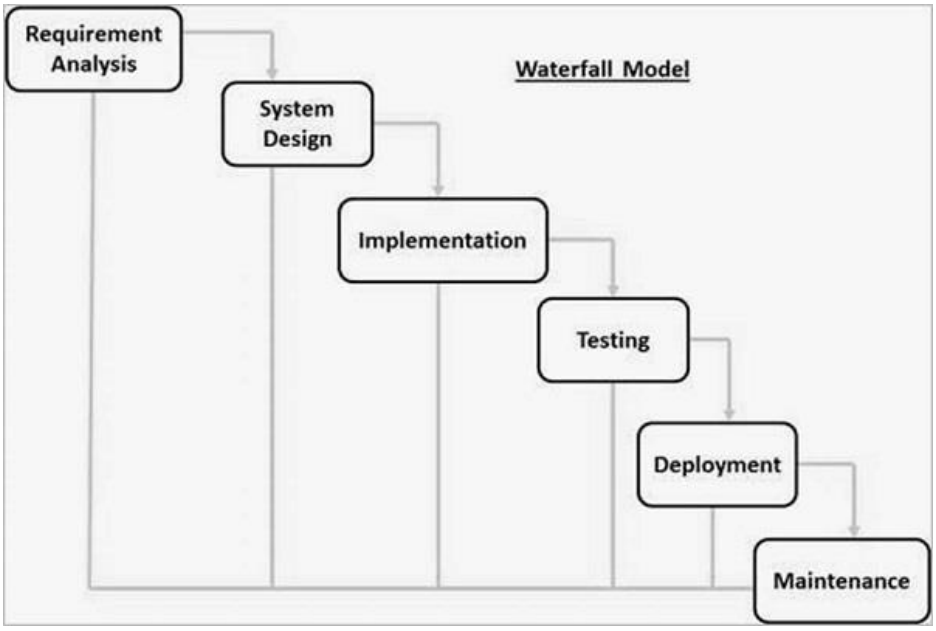
This report has 2 tasks. In task1 I will describe about SDLC models which could be used in Tune Source and identify some risks and offer an approach to manage risks. Task 2 will discuss the purpose of conducting a feasibility study for the project and how they are applied into the project.

II. Task 1 – SDLC model

1. Describe the following SDLC models: waterfall, v-model, prototyping, agile and spiral. Choose one that you think suitable for the project and explain why (P1).

A. *Waterfall model*

The waterfall model describes a software development process. The waterfall model focuses on the logical progression of the steps taken during the software development life cycle (SDLC). This model is very simple, easy to use when in one waterfall model each stage needs to be fully completed before moving to next stages.



Advantages:

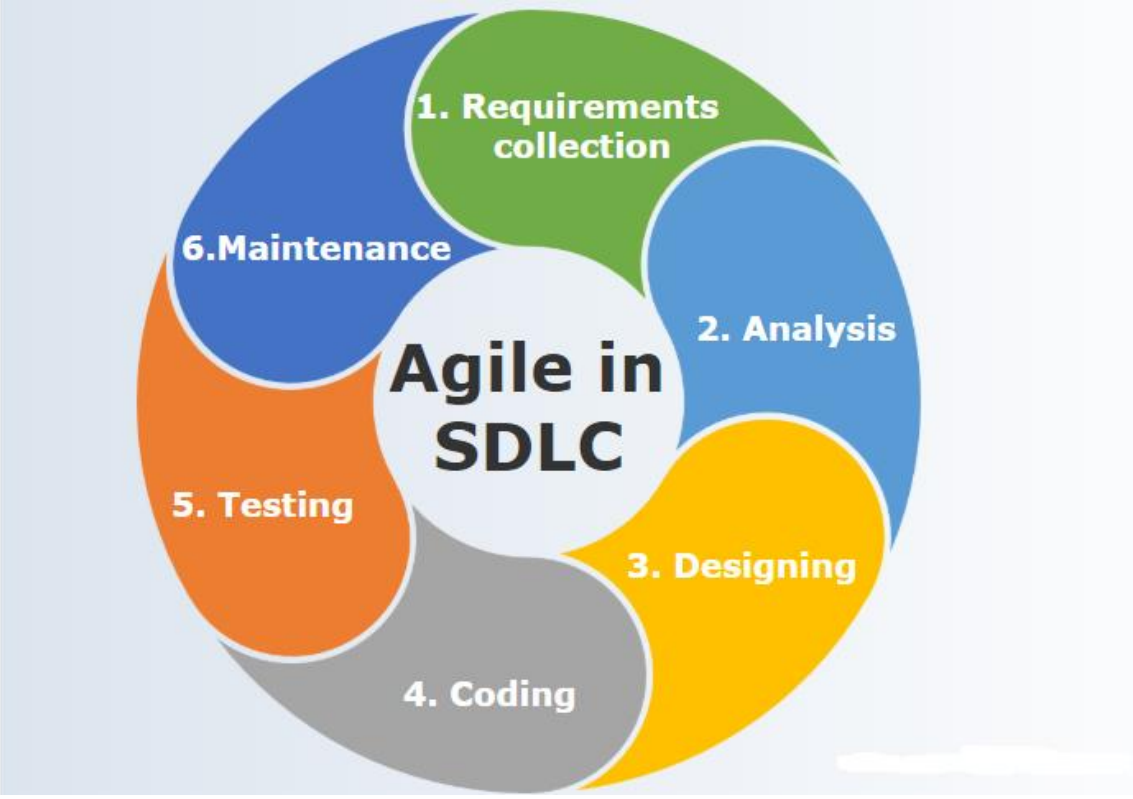
- Good adaptability to many flexible groups
- Allows early design changes
- Easy to operate, easy to manage

Disadvantages:

- Hard to changes project's requirements are allowed before
- No have active product preview

B. Agile model

Agile is a fast and flexible method of software development that allow businesses to bring high quality products to users in a short time. The developer works with each request that the customer makes when the system is deploying. Requirements and solutions evolve based on combinations of functions. In Agile model, tasks are broken up into small timeframes to provide features specific to the final release.



Advantages:

- Design optimization by constantly coming up with new ideas
- Respond to sudden, or late, change.
- Customers well know the progress as well as able to check each request specifically

Disadvantages

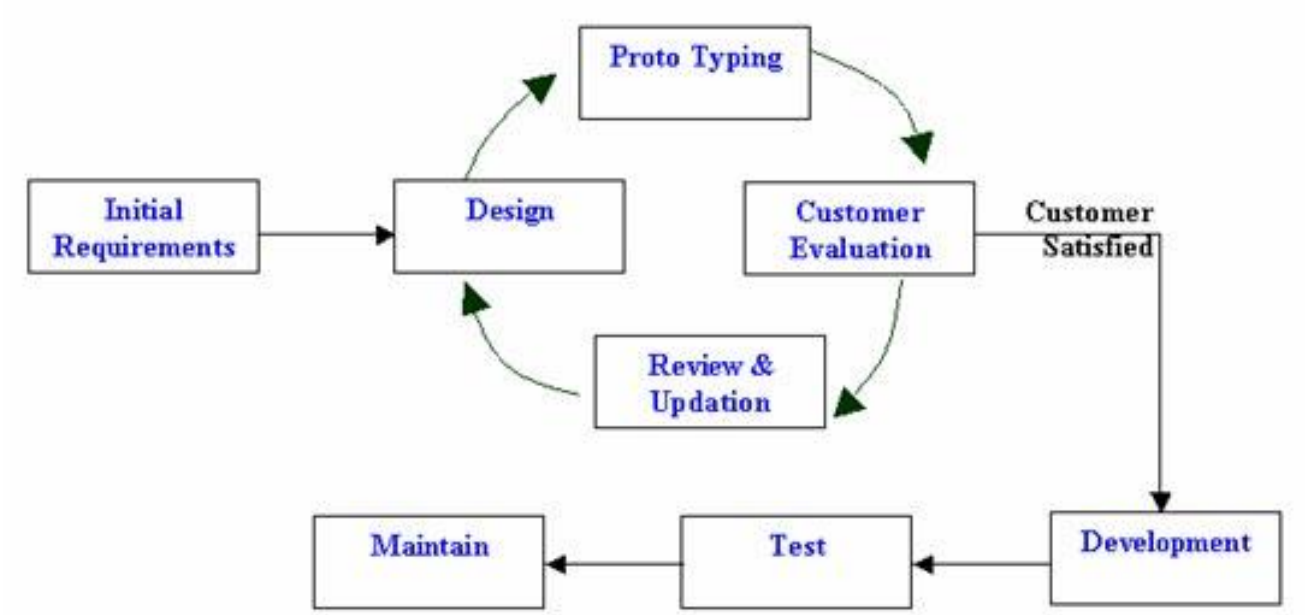
- It is necessary to have a development team with high capacity and experience.
- Lacks clear documentation.

C. Prototyping model

Prototyping model is a software development model that is developed based on system requirements. It is built, tested, and reworked until an acceptable prototype is achieved.

In the prototype model, the process begins by collecting requirements in the presence of representatives of both the developer and the customer in order to set the overall goal of the future software system, co. record all known requirements and outlines which groups of requirements need to be made clear.

Then, implementing a fast design that focuses on conveying aspects through prototype so that customers can visualize and evaluate to help complete requirements for the entire software system. This not only helps refine the requirements, but also helps the development team to better understand what needs to be developed. Following this prototype phase may be a waterfall cycle or possibly a different pattern.



Proto Type Model

Advantages:

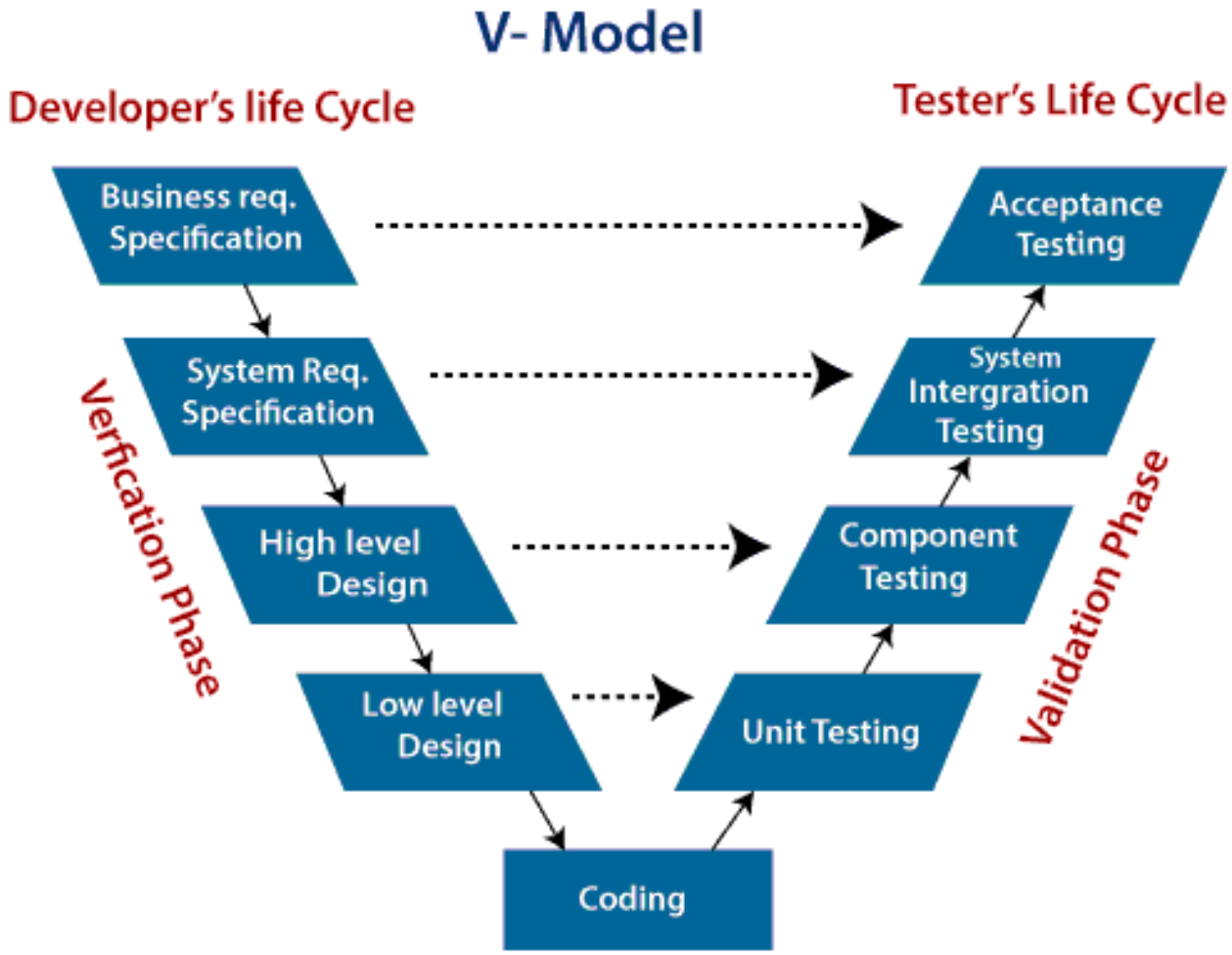
- Missing functionality can be easy identified, which helps to reduce risk
- The prototype helps to gain a better understanding of the customer's needs.

Disadvantages:

- Slow and time taking process.
- The cost for development is high

D. V-model

V- model means Verification and Validation model. Just like the waterfall model, the V-Shaped life cycle is a sequential path of execution of processes. Each phase must be completed before the next phase begins. V-Model is one of the many software development models.



Advantages:

- Simple and easy to use
- Test designing happens wall before coding, which saves a lot of time
- Avoids the downward flow of the defects

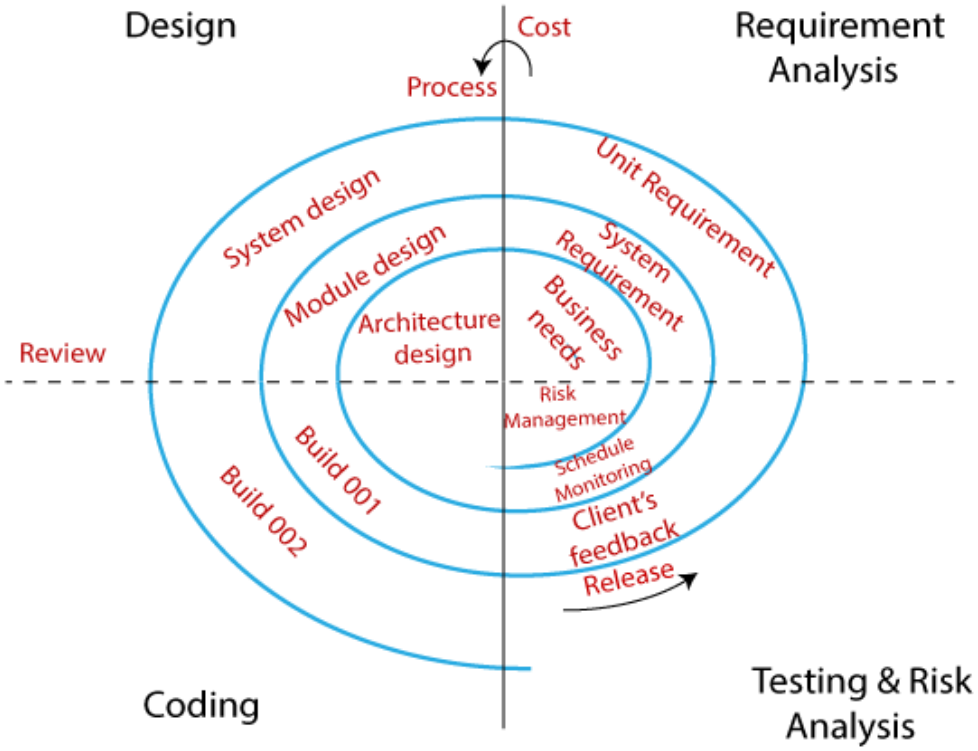
Disadvantages:

- Rigid and least flexible

- No early prototypes of the software are produced

E. Spiral model:

Spiral model was proposed by Boehm. In spiral model constraints were defined and risk identified and analyzed, which help customer and developer. Customer can also make suggestions and requests when the project is being implemented.



Advantages:

- Avoid risk
- Avoid schedule and cost overrun

Disadvantages:

- Complicated and unsuitable for small and low-risk projects.

Assumption:

- Tune Source's current website was also designed with the waterfall model

I think Waterfall model is quite suitable for this project because:

- ✓ Business requirements are clearly and specifically given so it is easy to design as well as fix errors in each step.
- ✓ Tune Source currently has a website and had some experience with specific planning. Apply Waterfall when it best understands the project's requirements, requirements are clear and have high stability so Waterfall is appropriate for this project.
- ✓ Tune Source has experience with waterfall model so it will be easier to operate.The waterfall model can adapt continuously to projects with many requirements

2. Identify some risks and discuss an approach to manage them (P2)

There are many definitions of risk, but in software development risk are something unplanned happenings, which may threaten the project, software etc.

Risk Management is the system of identifying addressing and eliminating these problems before they can damage the project.

A software project can be concerned with a large variety of risks. In order to be adept to systematically identify the significant risks which might affect a software project, it is essential to classify risks into different classes. The project manager can then check which risks from each class are relevant to the project.

There are three main classifications of risks which can affect a software project:

1. Project risks
2. Technical risks
3. Business risks

Description of Risk	Type	Probability	Impact	Mitigation plan
Project progress is not defined or clearly defined	Operational	High	High	Hold planning workshops with the project team so they understand the plan and the likelihood of missed tasks decreases. Share plans and co-implement upcoming tasks at each weekly project progress meeting.
Lack of communication, causing lack of clarity and confusion.	Human error	High	High	Write a communication plan that includes the frequency, goals, and audience of each person who needs to communicate. Identify stakeholders early and

				ensure that they are considered as a communication plan. Use the communication channel best suited for your audience.
Failure to grasp information from customers leads to lack of customer requests	Human error	High	High	Make sure that customers have prepared quality test cases and quality assurance cases. Increase risk weight immediately if this problem is clearly not fully tested. Customers can expand their testing and bring in additional resources now.
Natural disasters such as extreme weather lead to the loss of resources, materials, space, etc.	Disaster	Low	Low	Ensure safety in place. Approach the project team to emergency procedures. Where cost effective, back up the systems on-site, for example generators. Notify authorities. Follow health and safety procedures. Notify stakeholders and Project Board.
There may not be enough human resources to complete the project by the end of the time	Resources	High	High	Select talented and experienced members to join the Project Team Create training courses to increase members, helping them improve productivity
Project could be halved because of the business situation.	Operational			Redefine the scope of the project, define what will be tested and what will need to be ignored Negotiate with the client on a project duration to match the project budget

				Improve productivity of each project stage, such as testing, creating test specifications, if you can save time, you can also save costs
Lack of funding when developing projects because of miscalculation	Budget	High	High	Carefully review the expenses as well as recalculate the project expenditures

III. Task 2: Feasibility study

1. Discuss the purpose of conducting a feasibility study for the project (P3)

Feasibility study means an analysis of a project to determine if it is practical or not. Various other objectives of feasibility study are listed below.

- To analyze whether the software will meet organizational requirements.
- To determine whether the software can be implemented using the current technology and within the specified budget and schedule.
- To determine whether the software can be integrated with other existing software.

Technical Feasibility is assessment that focuses on the technical resources which helps organizations determine whether the technical resources meet capacity. It also involves the evaluation of the hardware, software, and other technical requirements of the proposed

Economic Feasibility is assessment typically involves a cost/ benefits analysis of the project, helping organizations determine the viability, cost, and benefits associated with a project before financial resources are allocated.

Organizational Feasibility is assessment that identify how the software will be accepted by the organization

❖ Apply Feasibility to the Project

1. Technical Feasibility:

a) Familiarity with Application:

✓ The team has experience with using online music tool

✓ The team has extensive experience in web design as well as web-based application.

✓ Tune Source currently has a website for sell CD so they have experience in developing a website. It is possible to avoid fundamental errors as well as optimize the system according to the requirement of the customers

b) Familiarity with Technology:

- ✓ Project is a complete web-based application. The main technologies and tools that are associated are:
  - HTML
  - CSS
  - MySQL
  - Diagram drawing tools
- ✓ Each of the technologies are freely available and the technical skills required are manageable.
- ✓ In the team, there is a separate team of advisors when there are some high technical requirements, the consultant can train as well as offer solutions for the developer.

2. Economic Feasibility:

- Because this site has already hosted by ISP so cost for bandwidth required are very low
- Tune Source was already become known as the place go to find rare audio recordings so in the future Tune Source will more attract a lot of customers and increasing sales are possible.
- LA is a potential market space so customers will be diversified and profits are also higher.
  - ✓ Rate of return over 3 years is: 280%
  - ✓ Net worth over 3 years is: $4.140.556
  - ✓ Breakeven occurs: after 2 months

We can see after 3 years, the return on an investment is 280%. This value can be expressed by the precise Net Present Value number that indicates that the company will raise $4,140,556 depending on the cash value of the next three years. This figures mean that the project's gains are fantastic. For the business as opposed to the cost of investment. The time until the business gets back the money is just 0.17 years, with a big profit. After the program is released, which means that the business will be reclaim their investment and quickly continue to reap profit.

3. Organizational Feasibility:

- Client requirements are made clear at first that it makes easy to implemented in the project
- Through market analysis, it can be seen that online music listening is very popular, so the project is considered to be very promising.
- The sponsor is willing to put his money to develop project after listen about business value of this project

2. Discuss how the three feasibility criteria (technical, economic, organisational) are applied to the project. Discuss whether the project is feasible. Discuss alternative technical solutions using the alternative matrix (using alternative matrix and have some paragraphs to compare solutions) (P4)

We have 3 solutions:

Solution 1: Custom Application using C#: Using this approach is beneficial in that because it is a language, programmers will be very easy to use and develop the system, low cost. But certainly this solution is not equal to the second one.

Solution 2: Using HTML, CSS, php, java: This is a far superior solution than the first. It supports website on multiple platforms, good security. Because it is written in 3-4 languages, the interface is definitely more friendly and easy to integrate with other systems. In terms of cost, it is slightly higher than solution 1 but in return the profit will be greater. Moreover, it can also be customized according to customers' satisfaction.

Solution 3: Purchase existing systems: The last solution is definitely a less effortless solution, the result is greater than the other 2 solutions, but it also has some weaknesses. Since this is a repeat system, it cannot be customized according to the customer's preference. The cost is also extremely expensive, but the benefits are not too great.

		Custom Application using C#		Using HTML, CSS, php, java.		Purchase existing systems	
Evaluation Criteria	Importance (Weight score)	Score (1-5)	Weighted Score	Score	Weighted score	Score	Weighted score
Technical issue							
Supported to multiple platform	10	2	20	3	30	5	50
Security	15	3	45	5	75	7	105
Clear and friendly interface	10	2	20	3	30	5	50
Integrated with other system	10	2	20	3	30	5	50
Economic issue							
Cost for development	10	2	20	2	20	60	60
Profit gained	20	6	120	6	130	7	150
Organizational issue							
User satisfaction	15	4	60	5	75	6	90
Interface customization	10	4	40	5	50	1	10
total	100	25	345	33	440	97	565

IV. Conclusion

After finished report, the project will process with Water Fall model.

The report also clarified about the risks and how to manage them as well as some examples of risks when implementing this project.

The feasibility study for this project shows huge benefit to the company

V. References list

Tutorialspoint.com. 2021. *SDLC Tutorial - Tutorialspoint*. [online] Available at: <https://www.tutorialspoint.com/sdlc/index.htm> [Accessed 26 February 2021].