

UGANDA CHRISTIAN UNIVERSITY
FACULTY OF ENGINEERING, DESIGN AND
TECHNOLOGY
DEPARTMENT OF COMPUTING AND
TECHNOLOGY
FIRST YEAR, BACHELORS OF SCIENCE IN
INFORMATION TECHNOLOGY
ADVENT SEMESTER EXAMINATION
IN
CS3101 - SOFTWARE PROJECT MANAGEMENT

Take home assessment
Dec.5PM

Deadline: 30th

Instructions:

- Upload a softcopy of your work to your GitHub repository before the deadline

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Question One

- I. Define a statement of work and outline the work products of your course project.

The statement of work is a legally binding document that captures and defines all the work management aspects of your project.

My project is concerned with Simulation of An Addition of a Blue Light to The Traffic Lights for Motorcyclists in Kampala city. It focused on trends in road traffic offences committed by motorist along Jinja highway in Kampala city.

The way and manner motorists use the roads leave much to be desired. motorcyclist take delight in riding on wrong lanes and even abuse the right of way rules, thereby creating conflict in the use of traffic, course delay and sometimes accident.

This has led to enormous road traffic accidents on our roads particularly in Kampala city.

A traffic signal unlocks vehicles locked on intersection. This helps vehicles going straight pays attention only to the opposite vehicles when signal light is green. Sequence of **green** (go), **yellow** (prepare to stop) and **red** (stop) of a Traffic signal plays an important role for orderly control of vehicle flow.

The main concern of the proposed system is to solve the problem of traffic accidents, jams traffic jams, with car speeds falling from an average of 28km/hr when there is no jam, to between 8 and 14km/hr because of traffic jams, which is in most cases caused by confusion in jam and by motorcyclists Therefore, road traffic congestion becomes a recurrent problem.

Main Objective / work products

To introduce a blue light for the motorcyclist on the already existing traffic lights. Our software will have the facility to give a unique blue light color for every traffic motorcyclist to go as other users wait. The Road Safety Light Management System can be embedded into the existing traffic light system. It is accessible to all road users through display of traffic light. Only motorcyclists are allowed to go in order to decongest the road.

The blue light will signal GO for motorcyclist before other vehicles move. The Suggested order will be

RED - stop

ORANGE - Get ready

BLUE - GO for motorcycles

GREEN - GO all

Elaborate 5 potential risks likely to threaten your project and how to they can be mitigated.

2. Explain the five stages of your project.

Requirement analysis

Requirement analysis is the most important and fundamental stage, This information will then be used to plan for the project and to conduct product feasibility study in the economical, operational and technical areas.

Planning for the quality assurance requirements and identification of the risks associated with my project is also done at this stage. The outcome of the technical feasibility study will help find various technical approaches that can be used in the to implement the project successfully with minimum risks.

System Design

This will involve analyzing and modeling the acquired information, this will be achieved using Entity Relationship Diagrams (ERDs) and Data Flow Diagram (DFDs) to model the system flow, identify different entities and their relationships. These will then be mapped into a logical Design.

After system analysis and process modeling. In this stage, system output procedure will also be designed, for example what kind of reports should the system output, and to whom should different kind of output be outputted.

Under system design, I have **prototyping**, a basic version of the system is built, tested, and then reworked as necessary until an acceptable prototype is finally achieved from which the complete product can now be developed.

Under system design I have my Data flow diagrams that will show how the system will run and be implemented. System diagrams will show all modules of the project and how they work.

System implementation

After the process of system analysis and design, the designed modules like system inputs, outputs and database design will be implemented using Microsoft Office Access, Database management system (DBMS), Arduino ide , C programming language and other embedded system components that will be used are used in this stage.

Here the prototype is turned into a real product.

Documentation

Different types of documents are created through the project cycle.

Documentation exists to explain product functionality, unify project-related information, and allow for discussing all significant questions arising between stakeholders and developers.

Here all the steps taken to build the product will be put into writing and diagrams using different software like draw.io for diagrams, MS word for compiling written texts

No	Software's	Use	Description
1	MS office word	Documentation	MS office 2019 is used for writing documentation starting from proposal up to the end.
2	Draw.io	Documentation	Visual paradigm was used to draw the diagrams (context diagram, flow chart, Data flow diagram, entity relationship diagram)

3. Is your project objective driven or product driven, elaborate on the difference.

Objective Driven

My project is objective driven because am aiming at accomplishing specific objectives which will take a long time to implement. That means each milestone is an objective reached or achieved.

3 a) Difference between objective driven and product driven

In object driven projects the main objective of the final outcome is considered. But doesn't take much effort to build the finalized fully functioning expected version at the initial iteration. Incremental approach is considered until the final objective is accomplished.

disadvantages

1. Not matching the finished version with expectations
2. over going with the budgeted price
3. delays in project finish time are some of them.

PRODUCT DRIVEN

Here the actual problem is identified and only have to develop a previously determined or designed product. That means only the implementation part of the project is remaining.

all the functions of the project are focused on the product its design, features, capabilities, and its subsequent designs are done here. Product driven means we focus on the user product. The final goal is a product

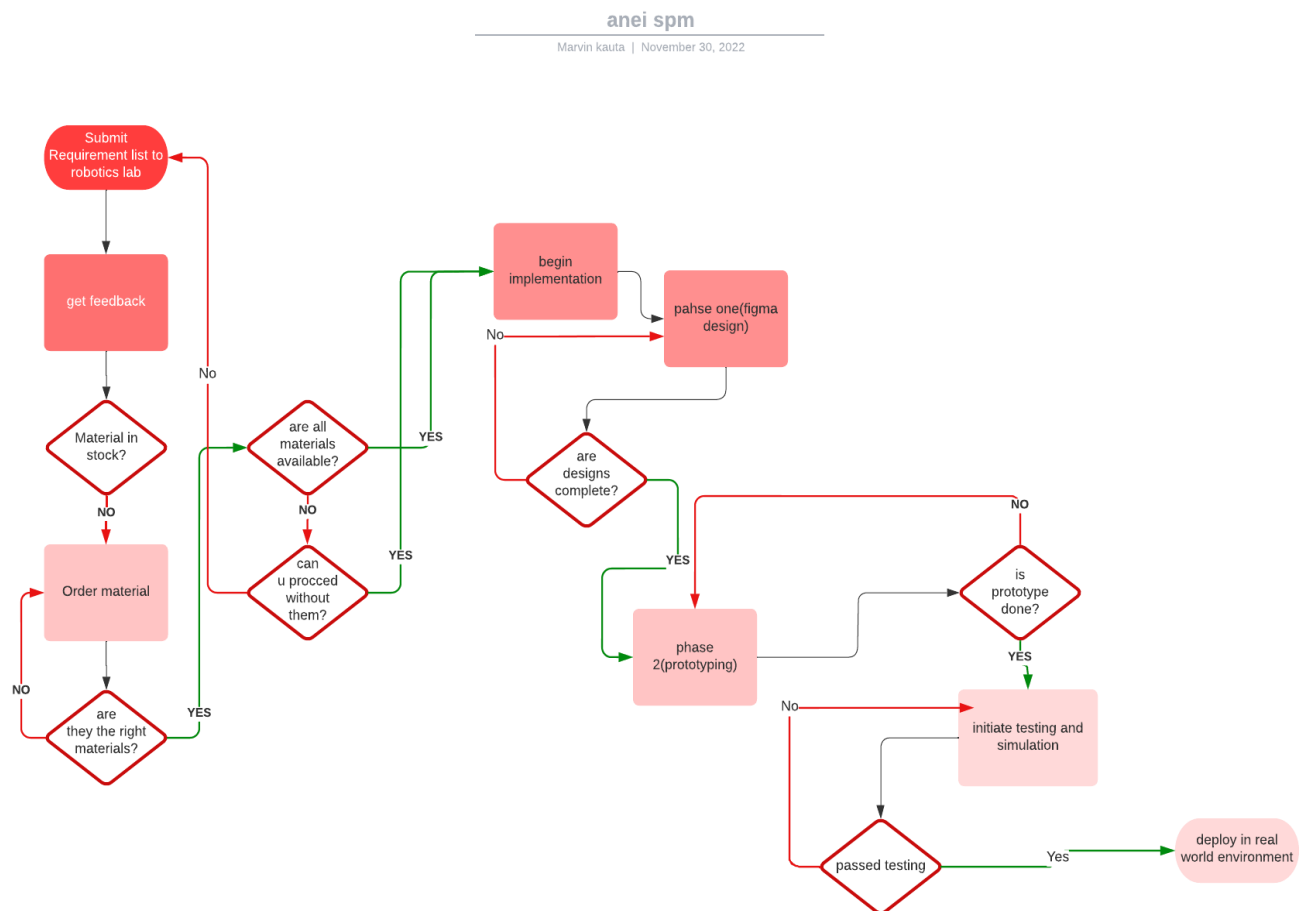
Question Two

I. Explain the Agile Methods

Agile is an iterative approach to project management and software development that helps teams deliver value to their customers faster and with fewer headaches.

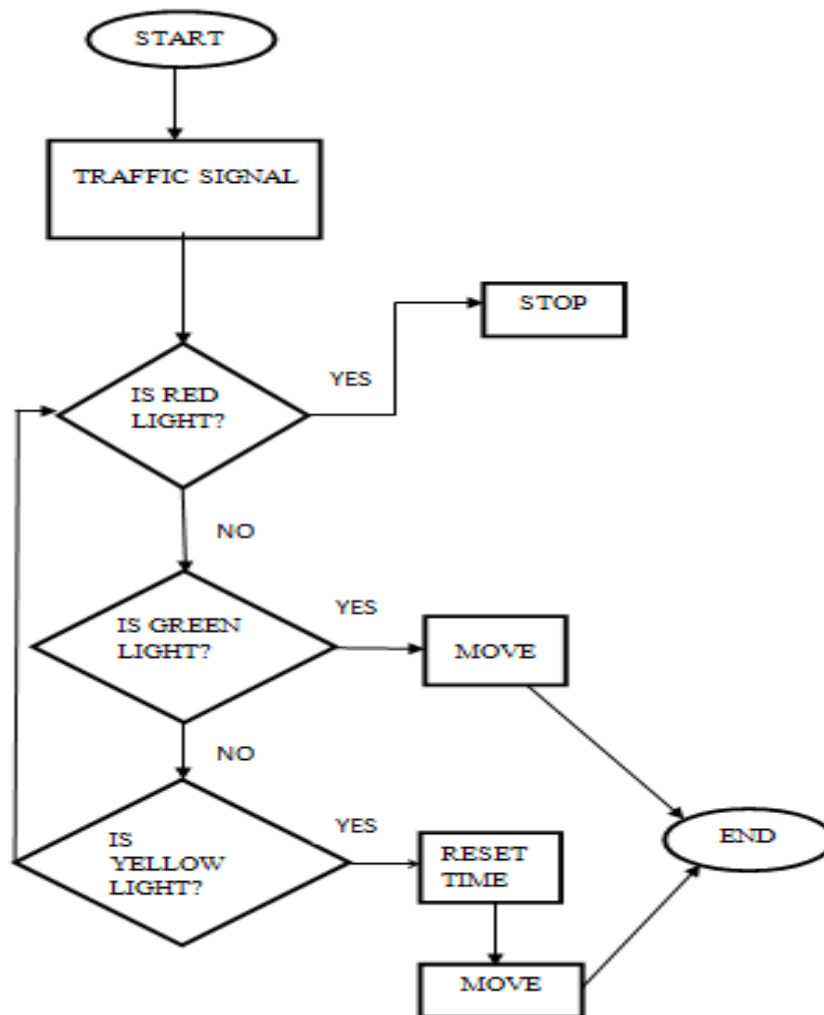
An agile team delivers work in small, but consumable, increments. Requirements, plans, and results are evaluated continuously so teams have a natural mechanism for responding to change quickly.

Draw a product break down structure for your project

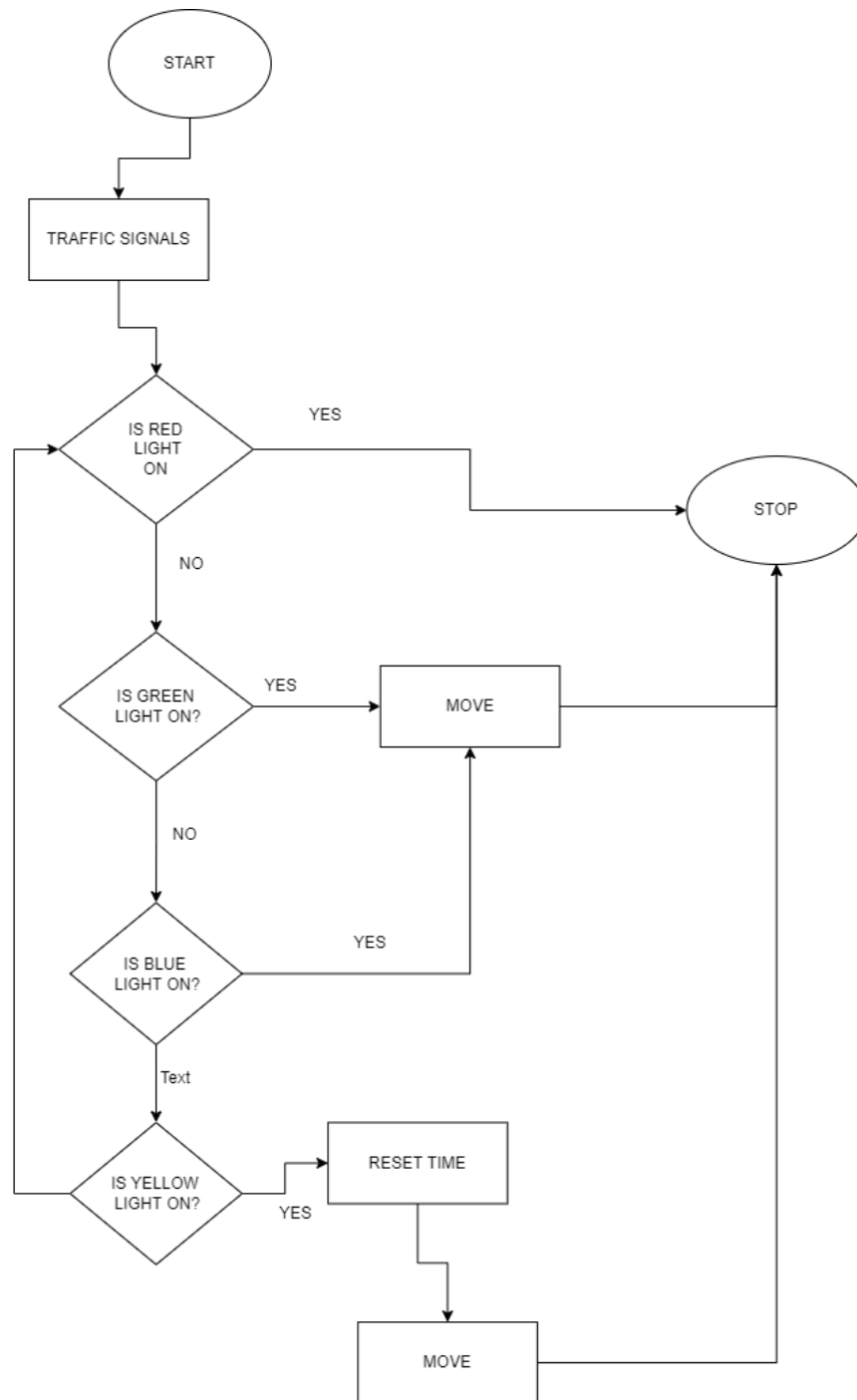


Draw the product flow diagram and the derived activity network

CURRENT TRAFFICLIGHTS SYSTEM



PROPOSED TRAFFIC LIGHT SYSTEM



Question Three

Define the different types of contracts in software projects

Unit Price Contract

This type of contract, also called an hourly rate contract, combines elements of fixed price and cost contracts. A unit price contract pays a specified hourly rate for every hour spent on the project.

Fixed Price Contracts

This type of contract is low-risk for the buyer, but high-risk for the seller since the time and costs of the project could exceed the fixed price. For this reason, a fixed price contract should include a detailed scope of work that clearly outlines what the buyer can expect for the agreed-upon price. When the contract is signed, the seller must complete the task or deliver the goods as agreed or risk being in breach of contract.

Purchase Orders

A purchase order is a specific type of contract that is used only to purchase goods and commodities.

Cost Reimbursable Contract

When the scope of a project is unclear or subject to change, you should consider a cost reimbursable contract. This document, sometimes called cost disbursement, is also useful when the risk of a specific project is high. The seller provides work for a fixed time period or project, then increases the bill to create profit after finishing the work.

Time and Materials Contract

This contract is used when labor is the main deliverable and typically provides the seller an hourly rate.

