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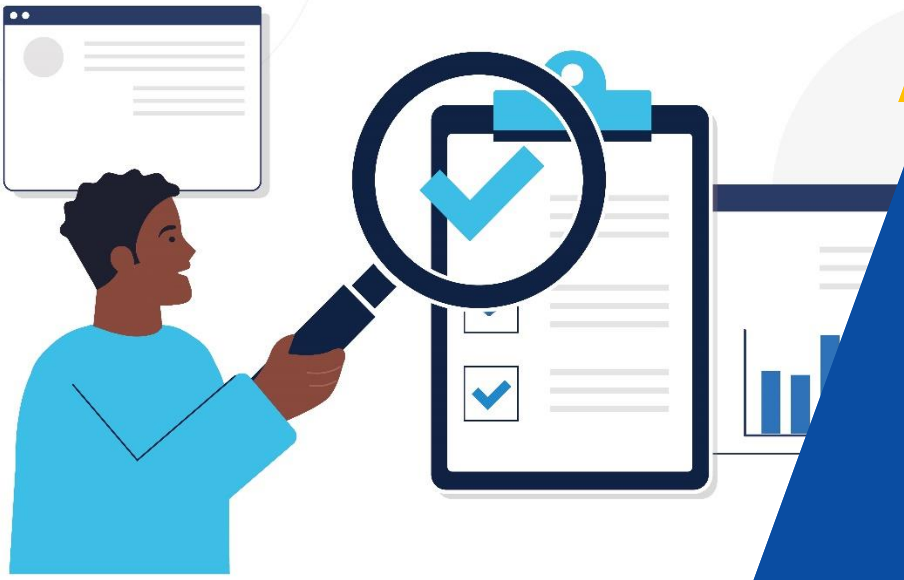

SWDPR301

SOFTWARE DEVELOPMENT

Project Requirements Analysis

TRAINER'S MANUAL

October, 2024

PROJECT REQUIREMENTS ANALYSIS

REPUBULIKA Y'U RWANDA

UBUMWE • UMURIMO • GUKUNDA IGIHUGU

RTB | RWANDA TVET BOARD

KOICA Korea International Cooperation Agency

TQUM TVET Quality Management Project

2024

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COORDINATION TEAM

RWAMASIRABO Aimable

MARIA Bernadette M. Ramos

MUTIJIMA Asher Emmanuel

PRODUCTION TEAM

Authoring and Review

UZAMUKUNDA Judith

TUYISENGE Ernest

Validation

TUYISENGE Speratha

KAYUMBA Fiston

HAKIZIMANA Bernard

Conception, Adaptation and Editorial works

HATEGEKIMANA Olivier

GANZA Jean Francois Regis

HARELIMANA Wilson

NZABIRINDA Aimable

DUKUZIMANA Therese

NIYONKURU Sylvestre

KWIZERA INGABIRE Diane

Formatting, Graphics, Illustrations, and infographics

YEONWOO Choe

SUA Lim

SAEM Lee

SOYEON Kim

WONYEONG Jeong

HAKIZAYEZU Adrien

Financial and Technical support

KOICA through TQUM Project

TABLE OF CONTENT

ACRONYMS

CRM: Customer Relationship Management

EIS: Employee Information System

PMO: Project Management Office

ROI: Return On Investment

RTB: Rwanda TVET Board

TQUM Project: TVET Quality Management project

INTRODUCTION

This trainer's manual includes all the methodologies required to effectively deliver the module titled **"Project Requirement Analysis."** Trainees enrolled in this module will engage in practical activities designed to develop and enhance their competencies.

The development of this training manual followed the Competency-Based Training and Assessment (CBT/A) approach, offering ample practical opportunities that mirror real-life situations.

The trainer's manual is organized into Learning Outcomes, which is broken down into indicative content that includes both theoretical and practical activities. It provides detailed information on the key competencies required for each learning outcome, along with the objectives to be achieved.

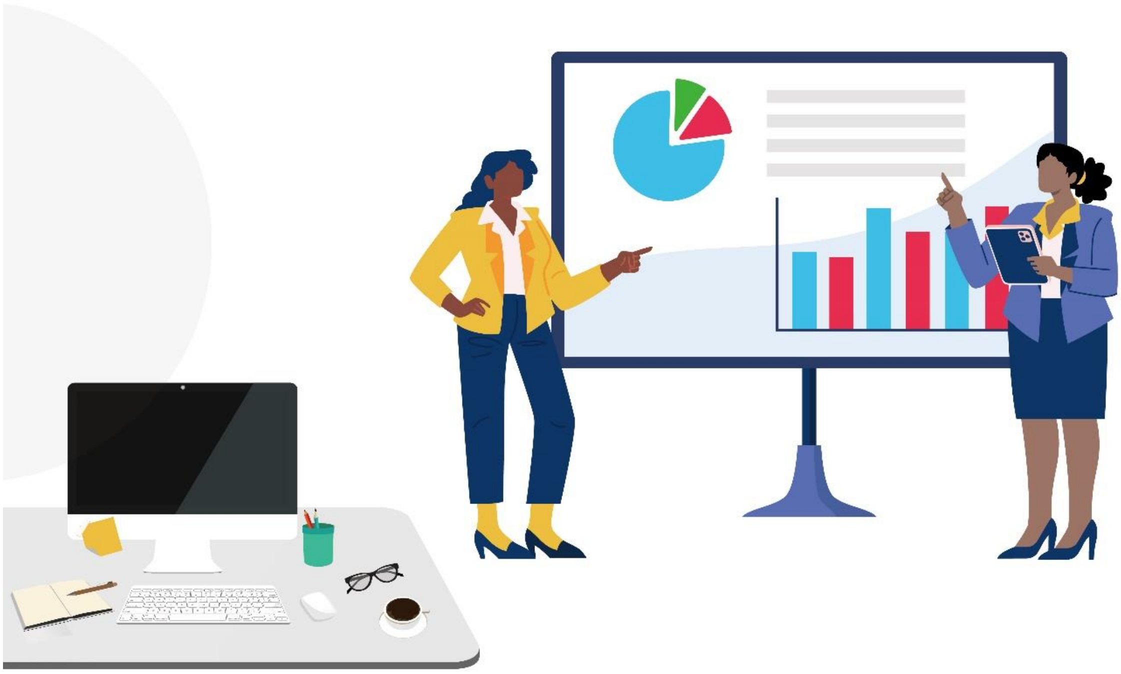
As a trainer, you will begin by asking questions related to the activities to encourage critical thinking and guide trainees toward real-world applications in the labor market. The manual also outlines essential information such as learning hours, didactic materials, and suggested methodologies.

This manual outlines the procedures and methodologies for guiding trainees through various activities as detailed in their respective trainee manuals. The activities included in this training manual are designed to offer students opportunities for both individual and group work. Upon completing all activities, you will assist trainees in conducting a formative assessment known as the end learning outcome assessment. Ensure that trainees review the key reading and the points to remember section.

MODULE CODE AND TITLE: SWDPR301 PROJECT REQUIREMENTS ANALYSIS

Learning Outcome 1: Identify customer needs
Learning Outcome 2: Gather project requirements
Learning Outcome 3: Determine user requirement

Learning Outcome 1: Identify customer needs



Indicative contents
1.1 Data gathering **1.2 Interpretation of data** **1.3 Organization of customer needs**

Key Competencies for Learning Outcome 1: Identify customer needs

Knowledge	Skills	Attitudes
• Description of key concepts used in data gathering • Description of work communication process • Description of data collection methods • Description of data interpretation • Description of customer needs organisation	• Preparing tools for data collection • Collecting raw data • Interpreting data • Organising data based on customer needs	• Being Teamwork when collecting data • Being a critical thinker in data analysis • Being Collaborative and good communicator when collaborating with customer

Duration: 10 hrs

Learning outcome 1 objectives:

By the end of the learning outcome, the trainees will be able to:

1. Describe correctly the key concepts used in project requirement
2. Describe correctly communication process as done in project requirement
3. Gather accurately data based on customer needs
4. Interpret effectively data based on customer needs
5. Organise properly data based on customer needs

Resources

Equipment	Tools	Materials
• Computers • Tablets	• Web browsers • Online forms builder • Microsoft Office (Word, Excel, Power point)	• Internet • Papers • Pens • Pencils • Eraser

Advance Preparation:

Before delivering this learning outcome, you are recommended to:

- Avail a computer with installed browse, and Microsoft office (Excel, Word, Power point)
- Avail internet connection

Indicative content 1.1: Data gathering

Duration: 5hrs

Theoretical Activity 1.1.1: Description of key concepts in project requirement

Notes to the trainer:

- While delivering this content, small groups can be used for describing key concepts for project requirement

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to answer the following questions:

I. Differentiate internal from external customers
II. Differentiate data from information
III. What do you understand by Pain point?
IV. What is the use of user story in project requirements?
V. What is a research project?

Step 2: Ask trainees to present their answers

Step 3: Provide expert view for more clarification.

Step 4: Address any questions or concerns.

Step 5: Ask trainees to read the key reading 1.1.1 in the trainee manual.

Points to Remember

- **Internal customer:** is a customer from the same organization while **External customer:** is a customer who belongs to another organization
- **Data** refers to raw facts materials that need to be processed in order to have meaning while **information** is data after being processed.
- **Pain points** refer to specific problems, challenges, or issues that individuals or entities encounter in a particular situation or context.
- **User story** is used to express software or product requirements in a manner that is easily understandable by both technical and non-technical stakeholders.
- **A research project** is an academic, scientific, or professional undertaking to answer a research question.

Theoretical Activity 1.1.2: Description of work communication process

Notes to the trainer:

- While delivering this content, groups may be used for describing work communication process

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to answer the following question:

I. What do you understand by work communication process?

II. Explain Components of work communication process

III. Identify Types of Communication channels

Step 2: Ask trainees to present their answers

Step 3: Provide expert view for more clarification.

Step 4: Address any questions or concerns.

Step 5: Ask trainees to read the key reading 1.1.2 in the trainee manual.

Points to Remember

- The communication process includes the following components: sender, encoding, message, decoding, Receiver, and feedback
- Types of communication channels are:
    - Verbal communication
    - Written communication
    - Visual communication

Theoretical Activity 1.1.3: Description of data collection methods and their related tools

Notes to the trainer:

- While delivering this content, groups may be used to describe raw data collection methods and their related tools.

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and request trainees to respond to the following question:

I. What do you understand by data collection?
II. Identify traditional data collection methods and their tools.
III. What is an online form?

Step 2: Ask trainees to present their answers

Step 3: Provide expert view for more clarification and address any questions or concerns.

Step 4: Ask trainees to read the key reading 1.1.3 in the trainee manual.

Points to Remember

- Data collection is the methodological process of gathering information about a specific subject
- The traditional data collection methods are:
    - ✓ Interview
    - ✓ Questionnaire
    - ✓ Observation
    - ✓ Documentation
- Online form is a digital version of a traditional paper form that is accessed and filled out electronically through the internet. It is a web-based tool that allows users to input and submit information online, eliminating the need for physical paperwork

Practical Activity 1.1.4: Preparing tools to be used in data collection

Notes to the trainer

- Facilitation of this activity can be individual based; you are supposed to demonstrate trainees how to prepare: questions for interview, Questionnaire, Observation checklist and, Online form. It is recommended to avail:
  - ✓ Pen, Paper
  - ✓ Templates for: Questionnaire, Observation checklist, and Online form
  - ✓ Avail research topic and target group

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the topic and ask trainees to read the task described below:

A **Bright Future Secondary School,** has requested the development of a website to make school information easily accessible to students, parents, and other stakeholders. The website will serve as a hub where users can access essential information about the school, such as available trades, school fees, location, contact details, and other relevant school details. This platform will enhance communication between the school and the community, offering an easier way for students and parents to stay informed.

To ensure the website fulfills the school's needs, the project requirements analyst is tasked with preparing tools to be used to collect detailed data from the school; those are: **Questions for interview, questionnaire, observation check list and online form**. The analyst will need to gather the following information:

1. **School Profile:**
   - Full name of the school and its history.
   - Mission and vision statements.
   - School logo and branding materials.
2. **School Trades and Programs:**
   - List of available trades (e.g., technical, academic, vocational programs).
   - Detailed descriptions of each trade or program.
   - Admission requirements and prerequisites for different programs.

3. **School Fees:**
    - Breakdown of school fees by program, grade, or level.
    - Available payment options and schedules (e.g., installments, online payments).
    - Any fee-related policies, such as late fee penalties or scholarships.
4. **Location:**
    - The physical address of the school.
    - Directions to the school (public transport routes, nearby landmarks).
    - Interactive map integration details (if required).
5. **School Authority and Contact Information:**
    - List of key school personnel (principal, vice principal, administrative heads).
    - Contact details (email addresses, phone numbers, office hours).
    - Preferred channels of communication for parents and students (e.g., email, phone, social media).
6. **Additional Information:**
    - Policies regarding student conduct, attendance, and academic performance.
    - Academic calendar, including term dates, examination schedules, and holidays.
    - School-related announcements, such as upcoming events, parent-teacher meetings, and extracurricular activities.
7. **Technical Preferences:**
    - Preferred website features (e.g., login for students, fee payment system).
    - Content management system (CMS) preferences (if any).
    - Any accessibility requirements for the website (e.g., language support, screen reader compatibility).

Step 2: Demonstrate how to prepare data collection tools and ask trainee to prepare them
Step 3: Verify whether the tools for data collection are well prepared.
Step 4: Ask trainee to read key reading 1.1.4. in trainee manual
Step 5: Ask trainees to perform the task provided in application of learning 1.1.

Points to Remember

Steps to prepare interview questions

- Identify key stakeholders
- Determine the information needed
- Design the questions
- Keep it concise and clear

Steps to prepare observation checklist

- Determine the Purpose
- Identify Key Components
- Define Checklist Items
- Organize Checklist Items
- Include Instructions
- Format the Checklist

Steps to Design online form for data collection

- Determine Data Collection Objectives
- Identify Required and Optional Fields:
- Write Clear and Concise Questions
- Provide Instructions and Guidelines
- Customize the Form's Appearance
- Test the Form

Practical Activity 1.1.5: Collecting raw data by using prepared data collection tools

Notes to the trainer

- To facilitate this activity a Role play can be used, you are supposed to monitor trainees to collect data by using the prepared data collection tools such as questionnaire, observation checklist, and online form, for the effective delivery; it is recommended to:
  - ✓ Avail and make ready all required data recording tools.

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the topic and ask trainees to perform the task described below:

A **Bright Future Secondary School,** has requested the development of a website to make school information easily accessible to students, parents, and other stakeholders. The website will serve as a hub where users can access essential information about the school, such as available trades, school fees, location, contact details, and other relevant school details. This platform will enhance communication between the school and the community, offering an easier way for students and parents to stay informed.

To ensure the website fulfills the school’s needs, the project requirements analyst is tasked with collecting detailed data from the school. The analyst must gather the following information:

Step 2: Asks trainees to collect data and monitor the procedures.

Step 3: Verify whether the collected data are clear.

Step 4: Ask trainee to read key reading 1.1.5. in trainee manual

Step 5: Ask trainees to perform the task provided in application of learning 1.1.

Points to Remember

- Collecting data using interview the below steps are used:
    - ✓ Introduce
    - ✓ Follow the Interview Script
    - ✓ Ask questions
    - ✓ Probing and Clarification
    - ✓ Record Responses
    - ✓ Address Participant Questions
    - ✓ Closing the Interview
- To collect data by using questionnaire follow the below steps:
    - ✓ Prepare for Distribution
    - ✓ Distribution
    - ✓ Monitor Responses
- To collect data by using observation the below steps are used:
    - ✓ Conduct the Observation
    - ✓ Maintain Objectivity
    - ✓ Record data
- To collect data by using online form follow the below steps:
    - ✓ Deploy the Form
    - ✓ Collect Data
    - ✓ Analyze and Act
    - ✓ Follow-Up

Theoretical Activity 1.1.6: Description of interaction with customer

Notes to the trainer:

- While delivering this content, groups may be used to describe interaction with customer

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and request trainees to respond to the following question:

I. Explain the way by which you can use to get to know customer
II. How can you predicate customer needs?
III. What do you have to care about when preparing to meet with customer?

Step 2: Ask trainees to present their answers

Step 3: Provide expert view for more clarification and address any questions or concerns.

Step 4: Ask trainees to read the key reading 1.1.6 in the trainee manual.

Points to Remember

- To get to know customer you may use the bellow ways:
  - ✓ Conduct interviews
  - ✓ Analyze customer data
  - ✓ Use personas
  - ✓ Visit customer sites
  - ✓ Attend industry events
- To predict customer needs, use the below ways
  - ✓ Analyse customer behaviour
  - ✓ Monitor social media
  - ✓ Use predictive analytics
  - ✓ Conduct surveys
  - ✓ Use customer personas
  - ✓ Stay up-to-date with industry trends
- When preparing to meet customer remember to:
  - ✓ Prepare Questions for meeting
  - ✓ Set Agenda

- ✓ Be on time
- ✓ communicate clearly
- ✓ Be respectful
- ✓ Follow up

Practical Activity 1.1.7: Interacting with customer

Notes to the trainer

- Facilitation of this activity can be individual based; you are supposed to monitor how to interact with customer
  - ✓ Avail and make ready all required tools.

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the topic and ask trainees to do the task described below:

After collecting data from Bright Future Secondary School, the project requirements analyst has identified various needs for the website. However, to ensure that the requirements are fully understood and meet the school's expectations, the analyst need to interact directly with the school's management entity. This interaction will help to clarify the data gathered, address any ambiguities, and refine the website features based on the school's priorities.

As requirements analyst, you are requested to schedule and conduct a meeting with Bright Future Secondary School's management to clarify and refine the website's requirements.

Step 2: Ask trainee to interact with customer and to record their expectations.

Step 3: Provide feedback to the activity performed by trainee.

Step 4: Ask trainee to read key reading 1.1.7

Step 5: Ask trainees to perform the task provided in application of learning 1.1.

Points to Remember

- To interact with customer, follow the below steps:
  - ✓ Greeting and Introduction
  - ✓ Setting the Agenda
  - ✓ Asking Open-Ended Questions
  - ✓ Summarizing the Conversation
  - ✓ Action Plan and Follow-Up
  - ✓ Closing the Meeting

Application of learning 1.1.

As a requirement analyst, you have been assigned to a new project aimed at developing a customer relationship management (CRM) system for a mid-sized retail company. The client has expressed concerns about inefficiencies in their current system, which they feel is leading to lost sales opportunities and poor customer satisfaction. Your task is to prepare appropriate data collection tools, such as interviews, questionnaire, checklist for documentation, online formand observation checklists, to gather detailed information from the company's employees, management, and customers. You are expected to use these tools to collect data on the current system's functionality. After collecting and analyzing the data, you will need to meet with the client to present your findings, discuss potential solutions, and organise the data to ensure that the final product meets their needs and expectations.

Checklist:

Criteria	Indicators	Observation	
		Yes	No
Tools to collect data are well designed	**Questionnaire**		
	1.Questions are designed		
	2. Questions are clear		
	3. Questions are concise		
	Observation checklist		
	4.Purpose is indicated		
	5.Checklist Items are defined		
	6.Checklist Items are organized		
	7.Instructions are provided		
	8.Format is respected		
	Documentation checklist		
	9.Define Objectives		
	10.Collect Raw Data		
	Online form		
	11.Data Collection Objectives are indicated		
	12.Required fields are identified		
	13.Provided questions are clear		
	14.Provided questions are concise		
	15.Instructions are provided		
	16.Guidelines are provided		
	17.Data validation is used		
	18.Questions are organised		
Raw data are well collected	**Collecting data using interview**		
	19.Conversation is Introduced		
	20.Interview Script is followed		
	21.Responses are Recorded		
	22.Participant Questions are Addressed		
	23.Interview is closed		
	Collecting data using Questionnaire		
	24.Questionnaire is distributed		
	25.Responses are monitored		
	26.Responses are collected		
	Collecting data using online form		
	27.Form is deployed		
	28.Responses are monitored		
	Interacting with customer		

Customer is well interacted	29.Meeting is introduced		
	30.Agenda is set		
	31.Open-Ended Questions are used		
	32.Conversation is summarised		
	33. Conversation is closed		
Data is well interpreted	**Data Manipulation**		
	34.Data are cleaned		
	35.Data are transformed		
	36.Data are filtered		
	37.Data are merged		
	38.Data are sorted		
	39.Data are summarized		
	Data Visualisation		
	40.Visualization is designed		
	41.Visualizations is implemented		
	42.Visualizations is tested		
Data are well organised based on customer needs	**Data categorisation**		
	43.Categorization Criteria are defined		
	44.Data Quality is assessed		
	45.Data categories are determined		
	46.Raw Data are categorised		
	Data cleansing		
	47.Data Quality Issues are identified		
	48.Data Cleansing Rules are defined		
	49.Missing Values are handled		
	50.Duplicate Entries are removed		
	51.Inaccurate or Inconsistent Data are corrected		
	52.Data are standardized		
	53.Data are formatted		
	Data reporting		
	54.Title and Introduction are added		
	55.Executive Summary is written		
	56.Methodology is described		
	57.Data Sources are listed		
	58.Data and Findings are analysed		
	59.Recommendations are provided		
	60.Conclusion is provided		
	61.References are added		
Decision			

Indicative content 1.2: Interpretation of data

Duration: 2 hrs

Theoretical Activity 1.2.1: Description of data interpretation

Notes to the trainer:

- While delivering this content, groups may be used to describe data interpretation

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and request trainees to respond to the following questions:

I. What do you understand by data interpretation?

II. Differentiate data visualisation from data manipulation methods of data interpretation

Step 2: Ask trainees to present their answers

Step 3: Provides expert view.

Step 4: Address any questions or concerns.

Step 5: Ask trainees to read the key reading 1.2.1. in the trainee manual.

Points to Remember

- It is used to make data more understandable or more structured.
- Methods of data interpretation are:
  - ✓ **Data manipulation**
  - ✓ **Data Visualization**

Practical Activity 1.2.2: interpreting data using data manipulation method

Notes to the trainer

- Facilitation of this activity can be individual based
- Avail sample qualitative data to interpret
- Avail tools and materials to interpret data

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the topic and ask trainees to read the task described below:

Here is a set of sample qualitative data collected from interviews and surveys conducted at Bright Future Secondary School. This data can be interpreted using various data manipulation methods like coding, categorization, thematic analysis, and keyword analysis.

Sample Qualitative Data

1. Feedback from Interviews with School Staff

- **Head teacher:**
  "The website should emphasize our commitment to excellence and highlight the success stories of our students. We want it to be visually engaging, with a strong focus on our mission and the trades we offer. Students and parents should easily find information about school policies and upcoming events."
- **Head of Department of ICT:**
  "The website needs to offer clear guidance on the Computer Science trade, including prerequisites and enrollment details. We also need to provide online resources for students to access course materials and coding tools. A login feature would be beneficial for restricted content access."
- **Head of Electrical Engineering:**
  "Parents and students often ask about school fees and available payment options. This information needs to be transparent and accessible. The website should also feature a section on scholarship opportunities, especially for technical programs like Electrical Engineering."

1. **Survey Responses from Parents**

- "We want to see real-time updates about upcoming events, like parent-teacher meetings and exams. This helps us plan ahead. A notifications feature would be helpful."
- "It would be great if the website offered details on extracurricular activities and how students can join."
- "I often find it difficult to understand the breakdown of school fees. A visual representation or simple table would be more helpful."
- "We appreciate email communication, but having access to contact details for all departments on the website would make things easier."

3. Questionnaire with Students

- “We need more information about the various technical programs offered. I wasn’t sure about the difference between ICT and Electrical Engineering until I spoke with someone.”
- “An online fee payment system would make things so much easier, especially for students who can’t always come to school in person.”
- “It would be helpful if the website had a section for students to see their academic progress or any assignments we missed.”

Step 2: Demonstrate how to interpret data. While demonstrating, explain the interpretation procedures.

Step 3: Asks trainees to interpret data using data manipulation method and monitor the procedures.

Step 4: Verify whether the data are well interpreted.

Step 5: Ask trainees to read key reading 1.2.2.

Step 6: Ask trainees to perform the task provided in application of learning 1.2.

Points to Remember

- To manipulate data, follow the below steps
  - ✓ Data cleaning
  - ✓ Data transformation
  - ✓ Data filtering
  - ✓ Data merging
  - ✓ Data sorting
  - ✓ Data summarization

Practical Activity 1.2.3: Interpreting data by using data visualisation method

Notes to the trainer

- Facilitation of this activity can be individual based
- Avail sample quantitative data to interpret
- Avail tools and materials to interpret data

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the topic and ask trainees to read carefully the task described below:

Here's a sample of quantitative data that was collected based on the tools (interviews, questionnaires, observation checklists, and online forms) for the Bright Future Secondary School website development project as a project requirement analyst you are asked to interpret them by using data visualization:

1. School Profile (Interview & Questionnaire Data):

a) **Years of operation**: 30 years

b) **Number of students enrolled annually**:
   - 2020: 470 students
   - 2021: 500 students
   - 2022: 530 students
   - 2023: 560 students

c) **Total staff members: 80**
   - Teaching staff: 55
   - Administrative staff: 15
   - Support staff: 10

2. School Trades and Programs (Interview & Questionnaire Data):

a) **Available Programs:**
   - Technical Programs: 6
   - Academic Programs: 5
   - Vocational Programs: 4

b) **Student distribution by program:**

- Technical: 210 students
- Academic: 220 students
- Vocational: 130 students

c) **Admission Requirements Satisfaction:**

- Yes: 80% of interviewees
- No: 20% of interviewees

3. School Fees (Interview & Questionnaire Data):

a) **Average fee structure by grade:**

- Grades 7-8: $550/year
- Grades 9-10: $650/year
- Grades 11-12: $750/year

b) **Preferred fee payment options:**

- Installments: 55%
- Full payment upfront: 35%
- Online payment: 10%

c) **Number of students benefiting from scholarships: 80 students (14% of the student population)**

4. Location (Observation Checklist Data):

a) **Distance from public transport stops**:

- Less than 1 km: 45% of students
- 1-3 km: 40% of students
- More than 3 km: 15% of students

b) **Modes of transport used by students:**

- Public transport: 50%
- Private vehicle: 30%
- Walking: 20%

5. School Authority and Contact Information (Interview & Online Form Data):

a) **Preferred contact methods for parents**:

- Email: 65%
- Phone: 25%
- Social media: 10%

b) **Response time satisfaction (from interviews):**

- Satisfied: 70%
- Dissatisfied: 30%

6. Additional Information (Interview, Observation Checklist & Online Form Data):

a) **Attendance rate**: 96%

b) **Events per year**:

- Parent-teacher meetings: 3
- Extracurricular activities: 12
- School events (e.g., graduation, sports day): 4

c) **Top 3 extracurricular activities (from questionnaire)**:

- Sports: 45% of students
- Music: 25%
- Drama: 15%

7. Technical Preferences (Interview & Online Form Data):

a) **Preferred website features**:

- Student login for progress tracking: 70%
- Online fee payment: 60%
- Event notifications: 80%

b) Preferred languages for website:

- English: 95%
- Other languages: 5%

c) Accessibility preferences:

- Mobile-friendly design: 85%
- Desktop-friendly design: 15%

Step 2: Demonstrate how to interpret data using visualisation method. While demonstrating, explain the interpretation procedures.

Step 3: Asks trainees to interpret data using data manipulation method and monitor the procedures.

Step 4: Verify whether the data are well interpreted.

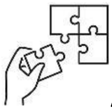
Step 5: Ask trainees to read key reading 1.2.3.

Step 6: Ask trainees to perform the task provided in application of learning 1.2.

Points to Remember

- Interpret data with visualisation
  - ✓ Clean and pre-process the data
  - ✓ Design the visualizations
  - ✓ Implement the visualizations

- ✓ Test and refine the visualizations



Application of learning 1.2.

As a project requirement analyst, you are hired by KCI Ltd for the development of a new educational website, your task is to ensure the platform is designed based on comprehensive insights derived from user data. The website aims to offer a variety of online courses, interactive tutorials, user forums, and a personalized dashboard for tracking progress. To effectively capture and address all project requirements, you need to interpret existing data on user preferences, engagement patterns, and feedback from similar educational platforms. This involves using data visualization and manipulation techniques to uncover trends, identify key features, and prioritize functionalities that will enhance the user experience.

Checklist:

Criteria	**Indicators**	**Observation**	
		Yes	**No**
Data is well interpreted	**Data Manipulation**		
	1.Data are cleaned		
	2.Data are transformed		
	3.Data are filtered		
	4.Data are merged		
	5.Data are sorted		
	6.Data are summarized		
	Data Visualisation		
	7.Visualization is designed		
	8.Visualizations is implemented		
	9.Visualizations is tested		

Indicative content 1.3: Organisation of customer needs

Duration: 3hrs

Theoretical Activity 1.3.1: Description of customer needs organisation

Notes to the trainer:

- While delivering this content, small group can be used for describing key concepts

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and request learners to respond to the following questions:

I. What are the data categories?
II. What is data cleansing process?
III. What are the parts of data report?

Step 2: Ask trainees to present their answers to the whole class.

Step 3: Provides expert view and address any questions or concerns.

Step 4: Ask trainees to read the key reading 1.3.1 in the trainee manual.

Points to Remember

- Data may be categorised as:
  - ✓ Numerical data
  - ✓ Categorical data
  - ✓ Time-series data
  - ✓ Text data
  - ✓ Image data
- Data cleansing phases are:
  - ✓ Data Duplication
  - ✓ Data Analysis
  - ✓ Data Standardization
  - ✓ Data Normalization

- ✓ Quality Check

- Key parts of data report are:
    - ✓ Title Page
    - ✓ Executive Summary or Abstract
    - ✓ Introduction
    - ✓ Methodology
    - ✓ Results or Findings
    - ✓ Analysis or Discussion
    - ✓ Conclusion
    - ✓ Recommendations
    - ✓ Appendices
    - ✓ References or Bibliography

Practical Activity 1.3.2: Organising data based on customer needs

Notes to the trainer

- Facilitation of this activity can be individual based
- Avail data to be organised
- Avail sample data report

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the topic and ask trainees read carefully the task described below:

> As a data analyst, you are asked to organise data based on customer needs by data categorising data, cleansing data, and reporting data as done in data analysis.

Step 2: Demonstrate how to organise data based on customer needs. While demonstrating, explain the procedures.

Step 3: Asks trainees to organise data based on customer needs and monitor the procedures.

Step 4: Verify whether the data are well organised.

Step 5: Ask trainees to read key reading 1.3.2.

Step 6: Ask trainees to perform the task provided in application of learning 1.3.

Points to Remember

- Steps to categorize data:
  - ✓ Identify the Raw Data
  - ✓ Understand the Project Requirements
  - ✓ Define Categorization Criteria
  - ✓ Assess Data Quality
  - ✓ Determine Categories
  - ✓ Categorize the Raw Data
- To perform data cleansing involves:
  - ✓ Identify Data Quality Issues
  - ✓ Define Data Cleansing Rules
  - ✓ Handle Missing Values
  - ✓ Remove Duplicate Entries
  - ✓ Correct Inaccurate or Inconsistent Data
  - ✓ Standardize and Format Data
- Steps to make data report
  - ✓ Write a Title and Introduction
  - ✓ Write an Executive Summary
  - ✓ Describe Methodology
  - ✓ List Data Sources
  - ✓ Analysis Data and Findings
  - ✓ Provide Recommendations
  - ✓ Conclude
  - ✓ Add References

Application of learning 1.3.

A large organization is undergoing a digital transformation to enhance its human resources management processes. As part of this initiative, they have decided to implement an Employee Information System (EIS) to streamline employee data management, improve data quality, and enable efficient reporting for decision-making. You are one among the project team that is in the requirement analysis phase. You are focusing on categorization of data, data cleansing, and data reporting aspects.

Checklist:

<table>
<tr><th rowspan="2">Criteria</th><th rowspan="2">Indicators</th><th colspan="2">Observation</th></tr>
<tr><th>Yes</th><th>No</th></tr>
<tr><td rowspan="6">Data are well organised based on customer needs</td><td colspan="3">Data categorisation</td></tr>
<tr><td>1.Categorization Criteria are defined</td><td></td><td></td></tr>
<tr><td>2.Data Quality is assessed</td><td></td><td></td></tr>
<tr><td>3.Categories are determined</td><td></td><td></td></tr>
<tr><td>4.Raw Data are categorised</td><td></td><td></td></tr>
<tr><td colspan="3">Data cleansing</td></tr>
<tr><td></td><td>5.Data Quality Issues are identified</td><td></td><td></td></tr>
<tr><td></td><td>6.Data Cleansing Rules are defined</td><td></td><td></td></tr>
<tr><td></td><td>7.Missing Values are handled</td><td></td><td></td></tr>
<tr><td></td><td>8.Duplicate Entries are removed</td><td></td><td></td></tr>
<tr><td></td><td>9.Inaccurate or Inconsistent Data are corrected</td><td></td><td></td></tr>
<tr><td></td><td>10.Data are standardized</td><td></td><td></td></tr>
<tr><td></td><td>11.Data are formatted</td><td></td><td></td></tr>
<tr><td></td><td colspan="3">Data reporting</td></tr>
<tr><td></td><td>12.Title and Introduction are added</td><td></td><td></td></tr>
<tr><td></td><td>13.Executive Summary is written</td><td></td><td></td></tr>
<tr><td></td><td>14.Methodology is described</td><td></td><td></td></tr>
<tr><td></td><td>15.Data Sources are listed</td><td></td><td></td></tr>
<tr><td></td><td>16.Data and Findings are analysed</td><td></td><td></td></tr>
<tr><td></td><td>17.Recommendations are provided</td><td></td><td></td></tr>
<tr><td></td><td>18.Conclusion is provided</td><td></td><td></td></tr>
<tr><td></td><td>19.References are added</td><td></td><td></td></tr>
</table>

Learning outcome 1 end assessment

Written assessment

Question 1: Match the key terms to their meaning from the below table by writing the correct number in the answer column corresponding to the letter provided in that column

Answer	key term	meaning
a) ……	Customer	1. Refers to the medium or pathway through which information is transmitted from a sender to a receiver.
b)……	User story	2.Is a shortcoming in a product or service that can make customers less likely to make a purchase.
c)…..	Communication channel	3. Referred to as a client, can be a person or an organization that orders and buys products or services that a business offers.
d)….	Customer pain point	4. Shows what the user wants to achieve with the product

Question 2: Answer by True or False to the following statements

a. During an interview the clients of an organisation for which you are developing a software for, must be involved in order to get the specific requirements.
b. Questionnaire is used only when analysts need information from a few people/persons.
c. During the communication between customer and analyst it is not allowed to use gestures.
d. When interpreting data, graphics may be used where it is possible.

Question 3: Why is it important to provide feedback after receiving a message? tick two that apply

- ☐ Confirmation of Receipt
- ☐ Reduce errors in typing
- ☐ Encourages Open Communication
- ☐ Encourage receiver encode a short message

Question 4: Answer by true or false for the below statements

a) Sending an e-mail to your customer is a verbal communication
b) Chatting with the customer on what's app through voice chat is a form of verbal communication
c) Presenting data using a graphic to the customer is o form of visual communication
d) Sharing a printed report with your customer it a kind of written communication

Question 5: Match data interpretation terms to their meaning

Answers	**Data interpretation terms**	**Meaning**
1)…………….	1.Data Manipulation	a. refers to the process of analyzing numerical data.
2)…………….	2.Qualitative data	b. refers to the process of analyzing non-numerical data, such as text, images, and audio.
3)…………….	3.Data visualisation	c. refers to the process of analyzing non-numerical data, such as text, images, and audio.
4)…………..	4.Quantitative data	d. is a graphic representation of data that aims to communicate numerous heavy data in an efficient way that is easier to grasp and understand

Question 6. Below are the categories of data except:

a) Numerical data
b) Categorical data
c) Cloud data
d) Image data

Question 7……………………………is the process of finding and removing errors, inconsistencies, duplications, and missing entries from data

a) Data cleansing
b) Data analysis
c) Data organization

Question 8. Below are elements of data reporting except:

a) Introduction
b) Acknowledgement
c) Objective
d) Data collection methods

Answers:

Question 1: Match the key terms to their meaning from the below table by writing the correct number in the answer column corresponding to the letter provided in that column

Answer	key term	meaning
a) 3	a) Customer	1. Refers to the medium or pathway through which information is transmitted from a sender to a receiver.
b) 4	b) User story	2.Is a shortcoming in a product or service that can make customers less likely to make a purchase.
c) 1	c)Communication channel	3. Referred to as a client, can be a person or an organization that orders and buys products or services that a business offers.
d) 2	Customer pain point	4. Sows what the user wants to achieve with the product

Question 2: Answer by True or False to the following statements

e. During an interview the clients of an organisation for which you are developing a software for, must be involved in order to get the specific requirements. True
f. Questionnaire is used only when analysts need information from a few people/persons. False
g. During the communication between customer and analyst it is not allowed to use gestures. False
h. When interpreting data, graphics may be used where it is possible. True

Question 3: Why is it important to provide feedback after receiving a message? tick two that apply

a) Confirmation of Receipt
b) Reduce errors in typing
c) Encourages Open Communication
d) Encourage receiver encode a short message

Question 4: Answer by true or false for the below statements

e) Sending an e-mail to your customer is a verbal communication False
f) Chatting with the customer on what's app through voice chat is a form of verbal communication. True

g) Presenting data using a graphic to the customer is a form of visual communication True

h) Sharing a printed report with your customer it a kind of written communication True

Question 5: Match data interpretation terms to their meaning

Answers	**Data interpretation terms**	**Meaning**
1) c	1.Data Manipulation	a. refers to the process of analyzing numerical data.
2) b	2.Qualitative data	b. refers to the process of analyzing non-numerical data, such as text, images, and audio.
3) d	3.Data visualisation	c. refers to the process of analyzing non-numerical data, such as text, images, and audio.
4) a	4.Quantitative data	d. is a graphic representation of data that aims to communicate numerous heavy data in an efficient way that is easier to grasp and understand

Question 6. Below are the categories of data except:

e) Numerical data
f) Categorical data
g) Cloud data
h) Image data

Question 7................................ is the process of finding and removing errors, inconsistencies, duplications, and missing entries from data

d) Data cleansing
e) Data analysis
f) Data organization

Question 8. Below are elements of data reporting except:

e) Introduction
f) Acknowledgement
g) Objective
h) Data collection methods

Practical assessment

KGD innovation is a pet food trading company located in your village. This company faces the problem of a small number of customers because farmers who do not live with the company do not know that it sells pet food. KGD innovation has decided to develop a website that will be used to advertise its activities so that the customer, wherever he is, can find out the services provided by KGD. As a project requirement analyst, you are hired by KGD Innovation to:

1. Collecting data about KGD Innovation
2. Interpret collected data
3. Organise Data and report findings to the company for approval.

THIS TASK WILL BE PERFORMED IN 4 HOURS

Checklist:

Criteria	Indicators	Observation	
		Yes	No
Tools to collect data are well designed	**Questionnaire**		
	1.Questions are designed		
	2. Questions are clear		
	3. Questions are concise		
	Observation checklist		
	4.Purpose is indicated		
	5.Checklist Items are defined		
	6.Checklist Items are organized		
	7.Instructions are provided		
	8.Format is respected		
	Online form		
	9.Data Collection Objectives is indicated		
	10.Required field are identified		
	11.Provided questions are clear		
	12.Provided questions are concise		
	13.Instructions are provided		
	14.Guidelines are provided		
	15.Data validation is used		
	16.Questions are organised		
Raw data are well collected	**Collecting data using interview**		
	17.Conversation is Introduced		
	18.Interview Script is followed		
	19.Responses are Recorded		
	20.Participant Questions are Addressed		
	21.Interview is closed		
	Collecting data using Questionnaire		
	22.Questionnaire is distributed		
	23.Responses is monitored		

	24.responses is collected		
	Collecting data using online form		
	25.Form is deployed		
	26.Responses is monitored		
Customer is well interacted	**Interacting with customer**		
	27.Meeting is introduced		
	28.Agenda is set		
	29.Open-Ended Questions are used		
	30.Conversation is summarised		
	31. Conversation is closed		
Data is well interpreted	**Data Manipulation**		
	32.Data are cleaned		
	33.Data are transformed		
	34.Data are filtered		
	35.Data are merged		
	36.Data are sorted		
	37.Data are summarized		
	Data Visualisation		
	38.Visualization is designed		
	39.Visualizations is implemented		
	40.Visualizations is tested		
Data are well organised based on customer needs	**Data categorisation**		
	41.Categorization Criteria are defined		
	42.Data Quality is assessed		
	43.Categories are determined		
	44.Raw Data are categorised		
	Data cleansing		
	45.Data Quality Issues are identified		
	46.Data Cleansing Rules are defined		
	47.Missing Values are handled		
	48.Duplicate Entries are removed		
	49.Inaccurate or Inconsistent Data are corrected		
	50.Data are standardized		
	51.Data are formatted		
	Data reporting		
	52.Title and Introduction are added		
	53.Executive Summary is written		
	54.Methodology is described		
	55.Data Sources are listed		

	56.Data and Findings are analysed		
	57.Recommendations are provided		
	58.Conclusion is provided		
	59.References are added		
Decision			

Further information to the trainer

Guffey, M. E., & Loewy, D. (n.d.). *Business communication: Process and product*. [Publisher information, if available].

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys: The tailored design method* (4th ed.). John Wiley & Sons.

Kvale, S., & Brinkmann, S. (2009). *Interviews: Learning the craft of qualitative research interviewing*. Sage Publications.

Stovall, J. (n.d.). *The art of communication: Your competitive edge*. [Publisher information, if available].

Tufts University. (2013). Customer needs identification. Retrieved from https://sites.tufts.edu/eeseniordesignhandbook/2013/customer-needs-identification-2/

Simplilearn. (n.d.). Data analysis: Methods, process & types. Retrieved from https://www.simplilearn.com/data-analysis-methods-process-types-article

Learning Outcome 2: Gather project requirements

Indicative contents
2.1 Identification of project requirements **2.2 Research methodology** **2.3 Conduct research** **2.4 Analyse results** **2.5 Report findings**

Key Competencies for Learning Outcome 2: Gather project requirements

Knowledge	Skills	Attitudes
• Identification of Project management approach • Description of Project requirements • Description of research methodology • Description of Project's Scope	• Outline project requirements • Define project scope • Conduct research • Analyse research results • Report findings	• Having Critical thinking in outlining project requirements • Being Decision maker in defining project scope • Having collaboration skills in conducting research • Having communication skills in conducting research

Duration: 20 hrs

Learning outcome 2 objectives:

By the end of the learning outcome, the trainees will be able to:

1. Identify properly project management approach as used in project management
2. Identify properly project requirements in accordance with customer needs
3. Determine correctly research methodology and tools in accordance with projects goals
4. Describe correctly project scope in accordance with projects goals
5. Outline correctly project requirements in accordance with customer needs
6. Conduct properly research in line with project goals
7. Analyse properly collected data in accordance with research conducted
8. Report properly research findings in accordance with project requirements

Resources

Equipment	Tools	Materials
• Computer	• Web browser • Microsoft office	• Internet • Papers • Pens

Advance Preparation:

Before delivering this learning outcome, you are recommended to:

- Have computers with Installed MS office package and Browser

Indicative content 2.1: Identification of project requirements

Duration: 4hrs

Theoretical Activity 2.1.1: Description of project management approach

Notes to the trainer:

- While delivering this content, small groups may be used to describe project management approaches

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to answer the following questions:

i. What do you understand by project management approach?

ii. Identify project requirements approaches

Step 2: Ask trainees to present their answers to the whole class.

Step 3: Provides expert view.

Step 4: Address any questions or concerns.

Step 5: Ask trainees to read the key reading 2.1.1 in the trainee manual.

Points to Remember

- A project management approach is a set of principles, practices, and methodologies used to plan, execute, and control projects.
- Project management approaches are: **Agile and Water fall model**

Theoretical Activity 2.1.2: Description of project requirements

Notes to the trainer:

- While delivering this contents small groups may be used to describe project requirements

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to answer the following questions:

I. What do you understand by project requirements?

II. Identify types of project requirement.

III. What are the types of non-functional requirement

Step 2: Ask trainees to present their answers

Step 3: Provides expert view and address any questions or concerns.

Step 4: Ask trainees to read the key reading 2.1.2 in the trainee manual.

Points to Remember

- A project requirement is a detailed description of what a project must accomplish, including specific criteria, features, functionalities, and constraints.
- A project should have two types of requirements: **functional requirements** and **non-functional requirements**.
- Types of non-functional requirement are:
  - ✓ Performance Requirement
  - ✓ Usability requirements
  - ✓ Recoverability requirements
  - ✓ Maintainability requirements
  - ✓ Accessibility requirements

Theoretical Activity 2.1.3: Description of project scope

Notes to the trainer:

- While delivering this contents groups may be used to describe project scope

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to answer the following question related to project scope:

I. What do you understand by project scope?

Step 2: Ask trainees to present their findings to the whole class.

Step 3: Provides expert view.

Step 4: Address any questions or concerns.

Step 5: Ask trainees to read the key reading 2.1.3 in the trainee manual.

Points to Remember

- Project scope refers to the specific boundaries, objectives, and deliverables of a project.
- For better defining project scope, the project scope statement may be prepared to avoid gaps in the scope.

Practical Activity 2.1.4: Preparing project scope statement

Notes to the trainer

- Facilitation of this activity can be individual based
- Avail project scope statement template

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the topic and ask trainees to perform the task described below:

This is a sample customer needs from Bright Future Secondary School

1. School Profile:

a. **Full Name**: Bright Future Secondary School
b. **History**: Established in 1995, the school has served the local community for over 25 years, with a strong focus on both academic excellence and vocational training.
c. **Mission Statement**: To provide holistic education that empowers students to achieve academic and vocational success while fostering personal growth and community engagement.
d. **Vision Statement**: To be a leading institution that prepares students for future challenges through innovative education and skill development.
e. **School Logo and Branding**: School logo features an open book with a shining light representing knowledge, and the colors are blue and gold.

2. School Trades and Programs:

a. **Available Trades**:
   - **Technical Programs**: Electrical Engineering, Computer Science
   - **Academic Programs**: Science, Arts, Commerce
   - **Vocational Programs**: Carpentry, Fashion Design, Catering

b. **Program Descriptions:**
   - Electrical Engineering: Focuses on the basics of electrical systems, circuits, and power distribution.
   - Carpentry: Provides hands-on training in woodworking and furniture design.

c. **Admission Requirements: Minimum of a primary school certificate for vocational programs; junior secondary certificate for academic programs.**

d. **Prerequisites: Basic mathematics for technical programs; no prerequisites for vocational programs.**

3. School Fees:

a. **Fee Structure**:
   - Technical Programs: $500 per term
   - Academic Programs: $300 per term
   - Vocational Programs: $200 per term

b. **Payment Options: Bank transfer, mobile payment, and online payment portal.**

c. **Fee Policies: Late payment incurs a penalty of $20 per week. Scholarships are available for top-performing students.**

4. Location:

a. **Physical Address**: 123 Knowledge Avenue, Future City, State XYZ
b. **Directions:** Located near the central bus terminal, 10 minutes' walk from Future City Mall.
c. **Interactive Map:** Google Maps integration preferred.

5. School Authority and Contact Information:

a. **Key Personnel**:
   - **Principal**: Dr. Emily Johnson (emily.j@brightfuture.edu)
   - **Vice Principal**: Mr. David Parker (david.p@brightfuture.edu)
   - **Head of Administration**: Mrs. Sarah Mills (sarah.m@brightfuture.edu)

b. **Office Hours: 8:00 AM - 4:00 PM, Monday to Friday.**

c. **Preferred Communication Channels:** Email for formal communication, phone and WhatsApp for urgent matters.

6. Additional Information:

a. **Policies**:
   - Attendance is mandatory, and students must maintain a 75% attendance rate.
   - Strict code of conduct regarding discipline, uniform, and punctuality.

b. **Academic Calendar:**
   - Term 1: January - March
   - Term 2: May - July
   - Term 3: September - November
   - **Examination Schedules**: Mid-term exams in the second month of each term; final exams in the third month.

c. **Announcements**: Upcoming Parent-Teacher Conference in October, annual sports day in November.

7. Technical Preferences:

a. **Website Features**:
   a. Student and parent login portal
   b. Online fee payment system
   c. Event calendar and news updates

b. **Content Management System (CMS)**: Open to recommendations; prefers WordPress or Joomla.

c. **Accessibility Requirements**: Must be mobile-friendly, include support for multiple languages (English, Kinyarwanda), and be compatible with screen readers for visually impaired users.

As a project requirement analyst, you are requested to prepare a project scope statement of Bright Future Secondary School's website based on the above provided customer needs.

Step 2: Demonstrate how to prepare statement of Project scope While demonstrating, explain the procedures.

Step 3: Asks trainees to prepare statement project scope and monitor the procedures.

Step 4: Verify whether the statement is well prepared.

Step 5: Ask trainees to read key reading 2.1.4.

Step 6: Ask trainees to perform the task provided in application of learning 2.1.

Points to Remember

- To prepare statement of project scope pass through the bellow steps:
  - ✓ Define Project Deliverables
  - ✓ List of Project Tasks
  - ✓ Provide tasks that are Out of Scope
  - ✓ Provide Project Assumptions
  - ✓ Provide Project Constraints
  - ✓ Reserve space for approvals

Practical Activity 2.1.5: Outlining project requirements

Notes to the trainer

- Facilitation of this activity can be individual based
- Avail a sample project statement
- Avail customer needs
- Avail project requirements template

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the topic and ask trainees to outline project requirements

Project Scope Statement for Bright Future Secondary School Website Development

1. Project Deliverables

a. Responsive School Website: A fully functional, mobile-friendly website that reflects the school's branding.

b. Content Management System (CMS): Integration of a CMS (e.g., WordPress or Joomla) to allow easy content updates by school staff.

c. User Portal: Login functionality for students, parents, and staff, allowing access to personalized content.

d. Online Fee Payment System: Secure, user-friendly system for processing school fee payments with options for installment payments.

e. School Information Hub: Pages detailing school profile, trades, programs, school fees, location, and key personnel contacts.

f. Interactive Map Integration: Google Maps embedded for easy navigation to the school.

g. Event and Announcement Calendar: Feature to post and update school events, announcements, and academic schedules.

h. Multilingual Support: Language options (English and Spanish) for accessibility.

i. Accessibility Features: Compatibility with screen readers and adherence to web accessibility standards.

2. List of Project Tasks

Task 1: Requirements gathering through interviews, questionnaires, and observation checklists.

Task 2: Finalizing website design (branding, structure, color scheme, logo integration).

Task 3: Developing user-friendly navigation and responsive design for mobile and desktop.

Task 4: Building and integrating the CMS for school staff to manage content.

Task 5: Creating user portals with login functionality and secure access for students, parents, and staff.

Task 6: Developing and testing the online payment system, including multiple payment options.

Task 7: Content creation and uploading (school profile, trades and programs, fees, policies).

Task 8: Integration of Google Maps and school location details.

Task 9: Developing an event calendar and announcements section.

Task 10: Implementing multilingual support and accessibility features.

Task 11: Website testing for functionality, performance, and accessibility.

Task 12: Training school staff on using the CMS and managing the website.

Task 13: Final website deployment and post-launch support.

3. Out of Scope

a. Social Media Management: Integration with the website is within scope, but managing social media accounts is out of scope.

b. Third-party Systems Integration: Any integrations with external systems outside of the online payment system are out of scope (e.g., learning management systems).

c. Long-term Website Maintenance: Ongoing maintenance and updates after project completion are excluded, unless covered under a separate agreement.

d. Custom Software Development: No custom software beyond the CMS and payment system will be developed.

4. Project Assumptions

a. Timely Access to Information: The school will provide all necessary content, including logos, program descriptions, fee details, and contact information, in a timely manner.

b. Stakeholder Engagement: Key stakeholders (administrators, teachers, IT staff) will be available for interviews, feedback, and testing throughout the project.

c. Stable Internet Connection: The school has a reliable internet connection to support website hosting, online payments, and CMS functionality.

d. Payment System Compliance: The payment system will comply with local financial regulations and secure online transaction protocols.

e. Staff Training Readiness: School staff will be available and ready to be trained on managing the website and CMS.

5. Project Constraints

a. Budget Limitations: The project budget is fixed and must cover all development, testing, and training activities without exceeding the agreed amount.

b. Timeframe: The website must be fully operational and launched within 6 months of the project start date.

c. Technology Restrictions: The website must use a CMS platform like WordPress or Joomla, as requested by the client, limiting custom software options.

d. Compliance with Accessibility Standards: The website must adhere to international web accessibility guidelines (e.g., WCAG) to ensure usability for people with disabilities.

6. Updated Estimates

a. Estimated Time for Completion: 6 months from the project start date.

b. Estimated Cost: $20,000 for design, development, CMS integration, payment system, testing, and training.

c. Resource Requirements: 3 full-time developers, 1 designer, 1 project manager, 1 tester, and support from the school’s IT department for content and feedback.

AS a project requirement analyst use **Project Scope Statement for Bright Future Secondary School Website Development** to outline project requirements

Step 2: Demonstrate how outline project requirement. While demonstrating, explain the procedures.

Step 3: Asks trainees to outline project requirements and monitor the procedures.

Step 4: Verify whether the outlined requirements are aligned with the project.

Step 5: Ask trainees to read key reading 2.1.5.

Step 6: Ask trainees to perform the task provided in application of learning 2.1.

Points to Remember

- **To outline project requirements, use the below steps:**
  - ✓ **Write an introduction:** Overview of the project and its objectives.
  - ✓ **Define Scope:** Detailed description of what is included and excluded from the project.
  - ✓ **List Functional Requirements:** What the system/product must do.
  - ✓ **List Non-Functional Requirements:** Constraints, performance requirements, usability criteria, etc.
  - ✓ **Define Constraints and Assumptions:** Factors that might limit the project or decisions made without full information.
  - ✓ **Define dependencies:** External factors or resources needed for the project.

Application of learning 2.1.

GreenTech Solutions is located in Kigali City Kicukiro District, it needs a requirement analyst t to improve customer engagement through a new mobile application focus on defining the project scope and outlining the project requirements. The context of this project is to develop an app that provides real-time updates on sustainability initiatives and personalized tips for reducing carbon footprints. To overcome the problem of current communication channels which is insufficient in engaging our environmentally-conscious audience effectively.

Checklist:

Criteria	Indicators	Observation	
		Yes	No
Statement of Project scope is well prepared	1.Project Deliverables are Defined		
	2.Project Tasks are listed		
	3.Tasks that are Out of Scope are provided		
	4.Project Assumptions are provided		
	5.Project Constraints are provided		
Project requirements are well Outlined	6.Introduction is written		
	7.Scope is defined		
	8.Functional Requirements are Listed		
	9.Non-Functional Requirements are Listed		
	10.Constraints are defined		
	11.Assumptions are defined		
	12.Dependencies are defined		
Decision			

Indicative content 2.2: Research Methodology

Duration: 1 hr

Theoretical Activity 2.2.1: Description of research methodology

Notes to the trainer:

- While delivering these contents groups may be used to describe research methodology

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and request trainees to respond to the following question:

I. What do you understand by research methodology?
II. Identify types of research methodology

Step 2: Ask trainees to present their answers

Step 3: Provide expert view for more clarification.

Step 4: Address any questions or concerns.

Step 5: Ask trainees to read the key reading 2.2.1 in the trainee manual.

Points to Remember

- Research methodology is a way of explaining how a researcher intends to carry out their research.
- Types of research methodology are:
  - ✓ Fundamental The
  - ✓ Exploratory
  - ✓ Surveys
  - ✓ Case study

Application of learning 2.2.

Bright Future Secondary School is developing a new web-based platform to streamline communication with students, parents, and other stakeholders. The platform will include features such as online fee payment, real-time updates about school events, student performance tracking, and program enrollment information. However, the school administration is unsure about the specific requirements and functionalities that should be prioritized in the system. To ensure the website meets the school's needs, a Project Requirement Analyst has been tasked with selecting research methodologies to gather data and provide a comprehensive analysis.

Checklist:

Criteria	**Indicators**	**Observation**	
		Yes	**No**
Research methodology to be used to conduct research is well identified	1.The Research Problem and Objectives are Defined		
	2.The Nature of the Research Problem is Considered		
	3.Data collection methods was considered		
	4.Expected outcome was considered		
	5.Advantages provided with research methodology are considered		
Decision			

Indicative content 2.3: Conduct Research

Duration: 8hrs

Theoretical Activity 2.3.1: Identification of steps to conduct research

Notes to the trainer:

- While delivering this content, small group can be used for steps to conduct research

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Asks trainees to answer the following questions:

1. Briefly describe a research plan
2. Explain how to conduct research?
3. How can a researcher show the research results?

Step 2: Ask trainees to provide their answers

Step 3: Provides expert view.

Step 4: Address any questions or concerns.

Step 5: Ask trainees to read the key reading 2.3.1 in the trainee manual.

Points to Remember

- Plan is a comprehensive document that outlines the approach, processes, activities, resources, and timelines needed to achieve the project's objectives.
  - ✓ The plan will model the activities needed at each phase of the research project.

    Serves as a valuable tool providing direction for those involved in the project both
  - ✓ Internally and externally.

    Most official research plan documents will include the core elements below:

Depending on the research project's size and scope, your research plan could be brief perhaps only a few pages of documented plans. Alternatively, it could be a fully comprehensive report.

- The research is conducted by implementing the elaborated research plan.
- To show research result, a written report or interactive presentation may be used

Practical Activity 2.3.2: Preparing research plan

Notes to the trainer

- This activity should be individual
- Avail research plan template as didactic material

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the topic and ask trainees to prepare a research plan to be used to conduct research

Step 2: Demonstrate how to elaborate research plan. While demonstrating, explain the procedures.

Step 3: Asks trainees to prepare a research plan and monitor the procedures.

Step 4: Verify whether the research plan is well prepared.

Step 5: Ask trainees to read key reading 2.3.2.

Step 6: Ask trainees to perform the task provided in application of learning 2.3.

Points to Remember

- **To elaborate research result, use the bellow steps:**

✓ Select a research method to be used
✓ Recruit participants and allocate tasks
✓ Prepare a project summary
✓ Create a realistic timeline
✓ Determine how to present your results

Practical Activity 2.3.3: implementing research plan

Notes to the trainer

- This activity should be group based
- Avail a research plan

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the topic and ask trainees to do the task described below:

> As a project requirement analyst, you are asked to conduct a research based on the prepared research plan.

Step 2: Guide trainees to implement research plan
Step 3: Provide feedback about the activity done on step 2
Step 4: Ask trainees to read key reading 2.3.3.
Step 5: Ask trainees to perform the task provided in application of learning 2.3.

Points to Remember

- Steps to implement research plan
  - ✓ Collect data
  - ✓ Organize
  - ✓ Analyze data

Practical Activity 2.3.4: Showing research results

Notes to the trainer

- This activity should be individual
- Avail sample research result

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the topic and ask trainees do the task described below:

As a project requirement analyst, you are asked to show results from the conducted research

Step 2: Explain the task and provide clear work instruction
Step 3: Guide trainees to present research result
Step 4: Provide feedback about the activity done on step 3
Step 5: Ask trainees to read key reading 2.3.4.
Step 6: Ask trainees to perform the task provided in application of learning 2.3.

Points to Remember

Those are steps to present the result of research

- Interpret the findings
- Draw conclusions
- Communicate your results
- Seek feedback and peer review

Application of learning 2.3.

Eco Clean company ltd, is planning to develop a new eco-friendly cleaning product line. We need a project requirement analyst to conduct research on market trends, competitor products, and consumer preferences to identify key features and sustainable ingredients that will differentiate our offerings. Your findings will be essential in defining the product requirements and ensuring market success.

Checklist:

Criteria	Indicators	Observation	
		Yes	No
Research plan is properly elaborated	1.Research method is Selected		
	2.Participants are recruited, and tasks are allocated		
	3.Project summary is prepared		
	4.Realistic timeline created		
	5.The way to present results is determined		
	6.Data are collected		
Research plan well implemented	7.Data are organized		
	8.Data are analyzed		
Research results is shown	9.Findings are interpreted		
	10.Conclusions are provided		
	11.Results are communicated		
	12.Feedback is provided		
Decision			

Indicative content 2.4: Analyse results

Duration: 4hrs

Theoretical Activity 2.4.1: Description of result analysis

Notes to the trainer:

- While delivering these contents small groups may be used to describe research result analysis

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and request trainees to respond to the following question:

1.Give feasibility types that may be used to analyse research results?

2. Which resources to be analysed during results analysis?

3. what analyst do in competency analysis?

Step 2: Ask trainees to present their answers

Step 3: Provides expert view.

Step 4: Address any questions or concerns.

Step 5: Ask trainees to read the key reading 2.4.1 in the trainee manual.

Points to Remember

- Feasibility analysis is an investigation to check if a project is feasible or not. Types of feasibility are: Technical feasibility, Operational Feasibility, Economic feasibility, Legal Feasibility, and Schedule Feasibility
- Resources analysis focuses on Financial Resources, Human Resources, Technological Resources, and Time Resources

- In competency analysis analyst should analyse; Skill Levels, Training and Development, and Performance
- After feasibility, resources and competency analysis analyst should summarise the results of analysis

Practical Activity 2.4.2: Analysing feasibility

Notes to the trainer

- This activity should be individual
- Avail feasibility report template
- Avail sample research result

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to analyse feasibility of the provided research result

Step 2: Demonstrate how to analyse feasibility, while demonstrating, explain the procedures.

Step 3: Asks trainees to analyse feasibility and monitor the procedures.

Step 4: Verify whether the feasibility analysis is performed correctly.

Step 5: Ask trainees to read key reading 2.4.2.

Step 6: Ask trainees to perform the task provided in application of learning 2.4.

Points to Remember

To analyse feasibility, use the below steps

- Run a preliminary analysis
- Evaluate financial feasibility
- Run a market assessment

- Consider technical and operational feasibility
- Review project points of vulnerability
- Propose a decision

Practical Activity 2.4.3: Analysing resources

Notes to the trainer

- This activity should be individual
- Avail tools and materials to be used to analyse resources
- Avail sample research results

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to analyse resources
Step 2: Demonstrate how to analyse resources, while demonstrating, explain the procedures.
Step 3: Asks trainees to analyse resources and monitor the procedures.
Step 4: Verify whether the resources are well analysed.
Step 5: Ask trainees to read key reading 2.4.3.
Step 6: Ask trainees to perform the task provided in application of learning 2.4.

Points to Remember

- **To analyse resources, use the below steps:**
  - ✓ Analyse Resource Pool
  - ✓ Compare Workload with Capacity and Actual Time Spent on Tasks
  - ✓ View Utilisation Rates
  - ✓ Create Placeholders
  - ✓ See the Larger Picture
  - ✓ Plan for “What-If” Scenarios

Practical Activity 2.4.4: Analysing Competency

Notes to the trainer

- This activity should be individual
- Avail tools and materials to be used to analyse competency

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to analyse competency
Step 2: Demonstrate how to analyse competency, while demonstrating, explain the procedures.
Step 3: Asks trainees to analyse competency and monitor the procedures.
Step 4: Verify whether the competencies are well analysed.
Step 5: Ask trainees to read key reading 2.4.4.
Step 6: Ask trainees to perform the task provided in application of learning 2.4.

Points to Remember

- **To analyse competency, consider the below steps:**
  - ✓ Assess Skills and Expertise
  - ✓ Evaluate Organizational Capability
  - ✓ Assess Vendor or Partner Competency

Practical Activity 2.4.5: Summarising results of analysis

Notes to the trainer

- This activity should be individual
- Avail feasibility report, resources analysis result, and competency analysis report

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to summarise the results of analysis
Step 2: Demonstrate how to summarise results, while demonstrating, explain the procedures.
Step 3: Asks trainees to summarise results and monitor the procedures.
Step 4: Verify whether the results are well summarised.
Step 5: Ask trainees to read key reading 2.4.5.
Step 6: Ask trainees to perform the task provided in application of learning 2.4.

Points to Remember

To summarise research result, use the below steps:

- Summarize the key findings from the feasibility, resource, and competency analyses.
- Provide clear recommendations.
- Identify potential risks.
- Summarize the recommended next steps for implementation.
- Develop a communication plan

Application of learning 2.4.

EcoTech Industries is an industry located in your district, it is conducting a project to optimize our energy management systems. After gathering data on current energy usage and efficiency trends, it needs a project requirement analyst to analyze the research results.

Checklist:

Criteria	Indicators	Observation	
		Yes	No
Feasibility is properly analysed	1.Preliminary analysis is done		
	2. Financial feasibility is evaluated		
	3.Market is assessed		
	4.Technical and operational feasibility are Considered		
	5. project points of vulnerability is reviewed		
	6. A decision is proposed		
Resources is well analysed	7.Resource Pool is analysed		
	8.Workload with Capacity and Actual Time Spent on Tasks are compared		
	9.Utilisation Rates are checked		
	10.Placeholders are created		
	11.Plan for "What-If" Scenarios is planned		
Competency is well analysed	12.Skills and Expertise are Assessed		
	13.Organizational Capability is evaluated		
	14.Vendor or Partner Competency are assessed		
Results is summarised	15.Findings from the feasibility are Summarized		
	16.Findings from the resource are Summarized		
	17.Findings from competency is Summarized		
	18.Clear recommendations are provided		
	19.Communication plan is Developed		
Decision			

Indicative content 2.5: Report Findings

Duration: 3hrs

Theoretical Activity 2.5.1: Description of report findings

Notes to the trainer:

- Trainer may use the small groups to facilitate this activity

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and request trainees to respond to the following question:
1.what is a financial report and why is it important when gathering project requirement?
2.What do you understand by forecasting report

Step 2: Ask trainees to provide their answers

Step 3: Asks trainees to present the provided answers and provide correct answers.

Step 4: Provides expert view.

Step 5: Address any questions or concerns.

Step 6: Ask trainees to read the key reading 2.5.1 in the trainee manual.

Points to Remember

- **A financial report** is a formal record of the financial activities and position of a business, organization, or individual over a specific period, typically prepared at the end of an accounting period such as a quarter or a fiscal year.
- A forecasting report is a document that predicts future financial performance, trends, or outcomes based on historical data, current market conditions, and various assumptions.

Practical Activity 2.5.2: Preparing financial report

Notes to the trainer

- The trainer small groups to perform this activity
- Avail tools, materials to be used to make report

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to prepare a financial report:
Step 2: Explain the task and provide clear work instruction
Step 3: Demonstrate how to produce financial report. While demonstrating, explain the procedures.
Step 4: Asks trainees to prepare financial report and monitor the procedures.
Step 5: Verify whether the financial report is well prepared.
Step 6: Ask trainees to read key reading 2.5.2.
Step 7: Ask trainees to perform the task provided in application of learning 2.5.

Points to Remember

- To prepare budget estimate, use the below steps:
  - ✓ Examine Revenue and Expenses
  - ✓ Calculate Return on Investment (ROI):
  - ✓ Analyse Budget Variance

Practical Activity 2.5.3: Preparing forecasting report

Notes to the trainer

- This activity should be individual
- Avail tools, materials to be used to make report

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to prepare a forecasting report

Step 2: Demonstrate how to prepare forecasting report. While demonstrating, explain the procedures.

Step 3: Asks trainees to prepare forecasting report and monitor the procedures.

Step 4: Verify whether the forecasting report is well prepared.

Step 5: Ask trainees to read key reading 2.5.3.

Step 6: Ask trainees to perform the task provided in application of learning 2.5.

Points to Remember

- To prepare a financial report follow the bellow steps:
  - ✓ Gather past financial statements and historical data
  - ✓ Choose a time frame for your forecast
  - ✓ Choose a financial forecast method
  - ✓ Document and monitor results
  - ✓ Analyze financial data

Practical Activity 2.5.4: Producing reporting of findings

Notes to the trainer

- This activity should be individual
- Avail tools, materials to be used to produce report

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to produce report of findings
Step 2: Demonstrate how to produce report. While demonstrating, explain the procedures.
Step 3: Asks trainees to produce report and monitor the procedures.
Step 4: Verify whether the report is well prepared.
Step 5: Ask trainees to read key reading 2.5.4.
Step 6: Ask trainees to perform the task provided in application of learning 2.5.

Points to Remember

- **Steps to produce report of findings**
  - ✓ Write Executive Summary
  - ✓ Write Financial Analysis result
  - ✓ Write Forecasting result
  - ✓ Add Recommendations
  - ✓ Prepare Action Plan
  - ✓ Conclude
  - ✓ Distribute report

Application of learning 2.5.

As a requirement analyst at HealthPlus Solutions, you're tasked with enhancing the patient management system. The research was conducted on patient data security and user interface preferences, apply your skills to reporting findings.

Checklist:

Critera	Indicators	Observation	
		Yes	No
Financial report is well prepared	1.Revenue and Expenses are examined		
	2.Return on Investment is calculated		
	3.Budget Variance is analysed		
Forecasting report is well prepared	4. Past financial statements and historical data are gathered		
	5. A time frame for forecast is provided		
	6.Financial forecast method is chosen		
	7. Results are documented and monitored		
	8. Financial data are analyzed		
	9.Executive Summary is provided		

<table>
<tr><td rowspan="5">Report of findings is well produced</td><td>10.Financial Analysis result is provided</td><td></td><td></td></tr>
<tr><td>11. Forecasting result is provided</td><td></td><td></td></tr>
<tr><td>12.Recommendations are added</td><td></td><td></td></tr>
<tr><td>13.Action Plan is prepared</td><td></td><td></td></tr>
<tr><td>14.Report is distributed</td><td></td><td></td></tr>
<tr><td colspan="2">Decision</td><td colspan="2"></td></tr>
</table>

Learning outcome 2 end assessment

Written assessment

Answers:

Question 1. Distinguish the characteristics of Agile from the characteristics of waterfall methodologies in the below table:

Characteristics	**Agile**	**Waterfall**
1.Iterative development with frequent releases.	√	
2.Continuous customer collaboration and feedback.	√	
3.Clearly defined stages.		√
4.Embraces change and adapts to evolving requirements.	√	
5.Easy to arrange tasks.		√
6.Process and results are well documented		√

Question 2: Match the types of non-functional requirements to their description

Answers	**Requirements**	**Description**
a)..3	Performance requirements	are specifications that outline the criteria for designing and evaluating a system's user interface and overall user experience.
b)..2	Maintainability requirements	focus on the ease of maintaining and updating the project deliverables over time.
c)..4	Recoverability requirements	define the criteria that must be satisfied in terms of the system's performance.
d)..1	Usability requirements	in a project refer to the ability of a system or application to recover from faults, errors, or unexpected events and resume normal operations.
e)..5	Accessibility requirements	address the inclusivity and availability of the project deliverables to users with disabilities or special needs.

Question 3: The project scope is just a way of describing what you have agreed to work on. It demonstrates the project's limitations and restrictions.

a) True

b) False

Answer is True

Question 4: Which type of research is primarily driven by curiosity and aims to expand knowledge without immediate practical applications?

A) Exploratory Research

B) Fundamental Research

C) Survey Research

D) Case Study Research

Answer: B) Fundamental Research

Question 5: Which research methodology is best suited for gathering information directly from a sample population and is commonly used in business to forecast production?

A) Exploratory Research

B) Fundamental Research

C) Survey Research

D) Case Study Research

Answer: C) Survey Research

Question 6: Which type of research methodology involves an in-depth examination of a specific individual, group, organization, or situation and is focused on understanding complex phenomena?

A) Exploratory Research

B) Fundamental Research

C) Survey Research

D) Case Study Research

Answer: D) Case Study Research

Question 7: Conducting research involves systematically collecting and analyzing information to answer a specific question or solve a problem.

True or False?

Answer: True

Question 8: A plan is an informal document that provides a rough idea of how a project might proceed.

True or False?

Answer: False

Question 9: True or False:

The implementation phase of research involves only designing the research methods and procedures without actually collecting data.

Answer: False

Question 10: Match the feasibility study types to their descriptions

Answer	Types of feasibility	Description
1 - A	1.Technical Feasibility	A. Analyzes whether the technologies chosen for software development will have many users and assesses if the relevant technology is stable and established.
2 - B	2.Operational Feasibility	B. Determines if the expected issue in the user request is a high priority and analyzes whether users are comfortable with new software.
3 - C	3.Economic Feasibility	C. Assesses costs related to hardware, software, development, and training to determine if the project is financially beneficial.
4 - D	4.Legal Feasibility	D. Examines the project's compliance with legal and ethical standards, including data protection, licenses, and copyrights.
5 - E	Schedule Feasibility	E. Analyzes the proposed project deadlines and the time required to complete the project to ensure timely completion.

Question 11: Which of the following resources should be analyzed during results analysis to understand the management and impact on a project?

a) Resource Allocation, Resource Utilization, Resource Availability
b) Financial Resources, Human Resources, Technological Resources, Time Resources
c) Human Resources, Allocation, Availability, Time Resources
d) Financial Resources, Technological Resources, Resource Allocation, Utilization

Answer:

b) Financial Resources, Human Resources, Technological Resources, Time Resources

Question 12: Which of the following aspects are evaluated during a competency assessment to determine if the project team's skills and abilities were adequate?

a) Resource Allocation, Utilization, Availability.
b) Financial Resources, Human Resources, Technological Resources.
c)Skill Levels, Training and Development, Performance.

d) Team Communication, Budget Management, Resource Availability

Answer:

A) Skill Levels, Training and Development, Performance

Question 13: True or False:

A financial report includes an Executive Summary that highlights key financial findings, current project status, and significant achievements or challenges, making it important for gathering project requirements.

Answer: True

Question 14: True or False:

A forecasting report is a section that outlines past revenue and cost data, without making any projections or discussing potential future scenarios.

Answer: False

Practical assessment

IKAZE shop Ltd is an electronic shop located in MUSANZE District. The Manager of this shop usually faces more inconveniences and the sales revenue is reduced because no ways he has to publish the goods and services easily to the buyers from different regions around the country and outside. He observed the situations and found that the online shopping system should be a good result to raise up his sales revenues. Therefore, the Manager has decided to hire a qualified software project requirements analyst to perform the following tasks:

- ✓ To plan for research

- ✓ To conduct research
- ✓ To prepare project scope
- ✓ Present (show) the research results to the Manager of IKAZE shop Ltd
- ✓ Analyse research results: Feasibility, Resources, Competency analysis and prepare a Summary report
- ✓ Generate financial and forecasting reports of research findings.

As software project requirements analyst, you are hired to perform the above tasks in 3hours Equipment, tools, and materials are provided by the IKAZE shop LTD.

Checklist:

Criteria	Indicators	Observation	
		Yes	No
Statement of Project scope is well prepared	1. Project Deliverables are Defined		
	2. Project Tasks are listed		
	3. Tasks that are Out of Scope are provided		
	4. Project Assumptions are provided		
	5. Project Constraints are provided		
Project requirements are well Outlined	6. Introduction is written		
	7. Scope is defined		
	8. Functional Requirements are Listed		
	9. Non-Functional Requirements are Listed		
	10. Constraints are defined		
	11. Assumptions are defined		
	12. Dependencies are defined		
Research plan is properly elaborated	13. Research method is Selected		
	14. Participants are recruited and tasks are allocated		
	15. Project summary is prepared		
	16. Realistic timeline is created		
	17. The way to present results is determined		
	18. Data are collected		
Research plan well implemented	19. Data are organized		
	20. Data are analyzed		
Research results is shown	21. Findings are interpreted		
	22. Conclusions are provided		
	23. Results are communicated		
	24. Feedback is provided		
Feasibility is properly analysed	25. Preliminary analysis is done		
	26. Financial feasibility is evaluated		
	27. Market is assessed		
	28. Technical and operational feasibility are Considered		
	29. Project points of vulnerability is reviewed		
	30. A decision is Proposed		
	31. Resource Pool is analysed		

Resources is well analysed	32. Workload with Capacity and Actual Time Spent on Tasks are compared		
	33. Utilization Rates are checked		
	34. Placeholders are created		
	35. Plan for "What-If" Scenarios is planned		
Competency is well analysed	36. Skills and Expertise are Assessed		
	37. Organizational Capability is Evaluated		
	38. Vendor or Partner Competency are Assessed		
Results is summarised	39. Findings from the feasibility are Summarized		
	40. Findings from the resource are Summarized		
	41. Findings from competency is Summarized		
	42. Clear recommendations are provided		
	43. Communication plan is developed		
Financial report is well prepared	44. Revenue and Expenses are examined		
	45. Return on Investment is calculated		
	46. Budget Variance is analysed		
Forecasting report is well prepared	47. Past financial statements and historical data are gathered		
	48. Time frame for forecast is provided		
	49. Financial forecast method is chosen		
	50. Results are Document and monitored		
	51. Financial data are Analyzed		
Report of findings is well produced	52. Executive Summary is provided		
	53. Financial Analysis result is provided		
	54. Forecasting result is written		
	55. Recommendations are added		
	56. Action Plan is prepared		
	57. Report is distributed		
	Decision		

Further information to the trainer

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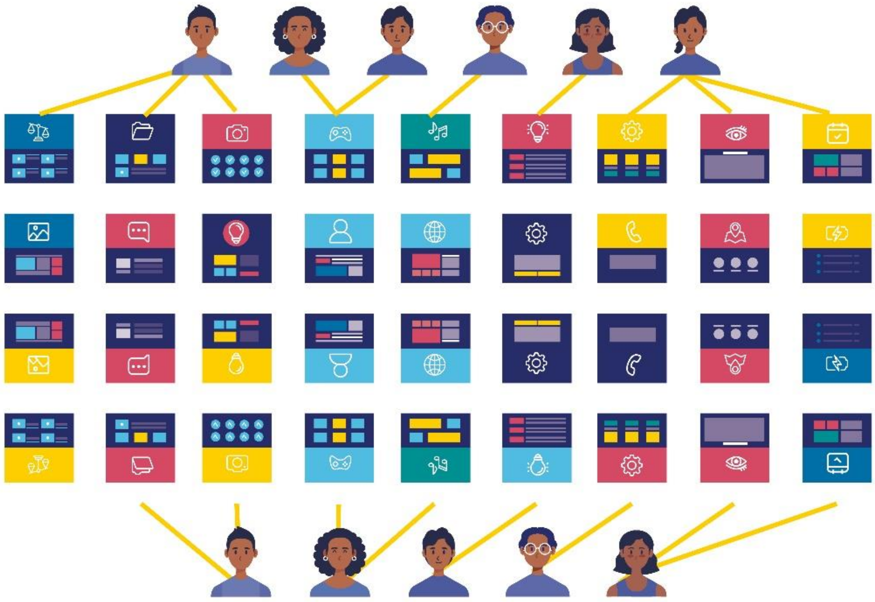
Laplante, P. A. (2013). *Requirements Engineering for Software and Systems* (2nd ed.). CRC Press.

These books provide comprehensive insights into the processes and techniques involved in requirements analysis.

Learning Outcome 3: Determine user requirement



Indicative contents
3.1 Identification of the target audience
3.2 Creation of user story
3.3 Elaborate task flow

Key Competencies for Learning Outcome 3: Determine user Requirement

Knowledge	Skills	Attitudes
• Identification of target audience • Description of user story	• Create user story • Creating project back log • Creating site map • Elaborating project task flow	• Being Critical thinker in creating user story • Being Decision maker in creating site map • Being Organiser in elaborating project task flow

Duration: 20 hrs

Learning outcome 3 objectives:

By the end of the learning outcome, the trainees will be able to:

1. Describe properly target audience based on project goals
2. Describe properly user story based on project goals
3. Create appropriately user story based on project goals
4. Create appropriately sitemap based on user story
5. Generate properly Task flow based on user story

Resources

Equipment	Tools	Materials
• Computer	• Web browsers • Trello • Excel	• Internet • Papers • Pens

Advance Preparation:

Before delivering this learning outcome, you are recommended to:

- Avail computer laboratory with installed browser and trello
- Have Internet connection

Indicative content 3.1: Identification of the Target audience

Duration: 4 hrs

Theoretical Activity 3.1.1: Description of target audience

Notes to the trainer:

- While delivering this content, small groups can be used for Describing target audience

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to answer to the following questions:

1.What do you understand by Target audience?

2. Give characteristics of target audience

3. What are target audience pain point?

Step 2: Ask trainees to present their answers

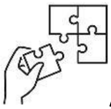
Step 3: Provides expert view and address any questions or concerns.

Step 4: Ask trainees to read the key reading 3.1.1 in the trainee manual.

Points to Remember

- The target audience refers to the specific group of individuals that a message, product, or service is intended to reach and appeal to.
- Characteristics of Target audience are: Technical Knowledge:
  - ✓ Roles and Responsibilities
  - ✓ Domain Expertise
  - ✓ User Characteristics
  - ✓ Communication Preferences
  - ✓ Organizational Culture

- **Common Target audience pain points in project requirement analysis are:**
  - ✓ Incomplete Requirements
  - ✓ Conflicting Requirements
  - ✓ Changing Requirements
  - ✓ Lack of Stakeholder Involvement
  - ✓ Lack of Clarity in User Requirements
  - ✓ Poor Documentation and Communication



Application of learning 3.1.

Bright Future Secondary School has requested the development of a new website to make essential school information easily accessible to students, parents, school staff, and the broader community. To ensure the website is user-friendly and meets the specific needs of its users, the project requirement analyst has been assigned the task of identifying the target audience of that website.

The analyst must begin by conducting a thorough analysis of the different groups that will interact with the website. Each audience has distinct needs, pain points, and levels of technical ability.

Checklist:

Criteria	Indicators	Observation	
		Yes	No
Target audience is well identified	1.The key consideration is valued		
	2.Characteristics are considered		
	3.Pain points are considered		
Decision			

Indicative content 3.2: Creation of user story

Duration: 8 hrs

Theoretical Activity 3.2.1: Description of user story

Notes to the trainer:

- Trainer may use small groups while delivering this activity
- Use sample user story as didactic material

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to answer to the following question:

1.What is a user story?

2. Give a format of a user story

Step 2: Asks trainees to present the provided answers

Step 3: Provides expert view.

Step 4: Address any questions or concerns.

Step 5: Ask trainees to read the key reading 3.2.1 in the trainee manual.

Points to Remember

- User story is a concise, informal description of a specific feature or functionality from the perspective of an end user or customer.
- Format of user story: As a [User Role], I want to [Action], So that [Benefit].

Practical Activity 3.2.2: Creating a user story

Notes to the trainer

- The trainer should conduct this activity individually

- Avail requirements list
- Avail a format of user story

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the topic and ask trainees to do the task described below:

As a project requirement analyst, you are asked to create a project user stories based on research results

Step 2: Demonstrate how to create project user story. While demonstrating, explain the procedures.
Step 3: Asks trainees to write user story and monitor the procedures.
Step 4: Verify whether the user stories are well created.
Step 5: Ask trainees to read key reading 3.2.2.
Step 6: Ask trainees to perform the task provided in application of learning 3.2.

Points to Remember

- **Follow the below steps to create user stories**
  - ✓ Identify the User or Stakeholder
  - ✓ Define the User's Goal
  - ✓ Write the User Story Title

Theoretical Activity 3.2.3: Description of project Backlogs

Notes to the trainer:

- Trainer may use small groups to perform this activity

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and askt trainees to answer the following questions:

1.What do you understand by project backlog?
2. Write down elements of project backlog

Step 2: Ask trainees to present the provided answers

Step 3: Provides expert view.

Step 4: Address any questions or concerns.

Step 5: Ask trainees to read the key reading 3.2.3 in the trainee manual.

Points to Remember

- A project backlog is a prioritized list of all the work items that need to be completed for a project.
- Elements of project backlog:
  - ✓ Unique identifier
  - ✓ User Story
  - ✓ Priority
  - ✓ Estimate
  - ✓ Acceptance Criteria
  - ✓ Status

Practical Activity 3.2.4: Creating a project backlog

Notes to the trainer

- The trainer may conduct this activity individual
- Avail project user story
- Avail a format of project backlog

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the topic and ask trainees do the task described below:

As a project requirement analyst, you are asked to create project backlog based on the created user story

Step 2: Demonstrate how create project backlog. While demonstrating, explain the procedures.
Step 3: Asks trainees to create project backlog and monitor the procedures.
Step 4: Verify whether the project backlog is well created.
Step 5: Ask trainees to read key reading 3.2.4.
Step 6: Ask trainees to perform the task provided in application of learning 3.2.

Points to Remember

- To create project backlog pass through the below steps
  - ✓ Break Down Requirements
  - ✓ Prioritize Requirements
  - ✓ Define Acceptance Criteria
  - ✓ Estimate Effort
  - ✓ Document and Organize

Application of learning 3.2.

At HealthCare Innovators Inc., we are launching a project to develop a new telemedicine platform that enables patients to consult with doctors remotely to help the patient that are not able to came to the health care. The health care needs requirement analyst to create detailed user stories that capture the needs of various users, including patients seeking medical advice, doctors conducting virtual consultations, and administrative staff managing appointments. Each user story should describe the specific goals, actions, and expected outcomes from the perspective of these different user roles. The analyst has also to create a project backlog

Checklist:

Critera	Indicators	Observation	
		Yes	No
User story is well created	1.Users are Identified		
	2.User's Goal is Defined		
	3.User Story Title is provided		

Project backlog is well created	4.Requirements are Prioritized		
	5.Acceptance Criteria is Defined		
	6.Effort is Estimated		
	7.User story is Documented and Organized		

Indicative content 3.3: Elaborate task flow

Duration: 8 hrs

Theoretical Activity 3.3.1: Description of Sitemap

Notes to the trainer:

- While delivering this content, small group can be used for describing Sitemap

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to answer the following questions:

1.What is the use of sitemap in project requirement analysis?

2. What are main types of site map

3. What elements a site map designer should embed in a site map?

Step 2: Ask trainees to provide their answers

Step 3: Provides expert view.

Step 4: Address any questions or concerns.

Step 5: Ask trainees to read the key reading 3.3.1.in the trainee manual.

Points to Remember

- Sitemap serves as a navigational aid by outlining the website's structure and helps users find information.
- Main types of sitemaps are: **XML** and **HTML**
- Difference between XML and HTML sitemap
  - **XML sitemaps are:**
    - ✓ Intended for search engines
    - ✓ Written in XML code

- ✓ Able to include URLs in any order
- ✓ Not designed for human readability or navigation

While

- **HTML sitemaps are:**
  - ✓ Intended for users
  - ✓ Created in HTML and displayed as webpages
  - ✓ Helpful for providing a structured list of links to pages within the site
  - ✓ Designed for human readability and navigation. But can also be used by search engines for crawling.

- Element of a sitemap
  - ✓ Main Pages or Modules:
  - ✓ Sub-Pages or Screens
  - ✓ Navigation Flow
  - ✓ Relationships and Dependencies
  - ✓ Information Hierarchy

Practical Activity 3.3.2: Creating site map

Notes to the trainer

- Facilitation of this activity can be individual based, where trainees are requested to create a site map
- Avail sample requirements to be used in creation of sitemap

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the topic and ask trainees do the task described below:

As a project requirement analyst, you are asked to create a sitemap using provided sample requirements

Step 2: Monitor trainees to create sitemap.

Step 3: Ask trainees to read key reading 3.3.2.
Step 4: Ask trainees to perform the task provided in application of learning 3.3.

Points to Remember

- **To create sitemap, use the below steps:**
  - ✓ Identify main pages or modules
  - ✓ Sub-Pages or Screens
  - ✓ Define Navigation Flow
  - ✓ Establish Relationships and Dependencies
  - ✓ Create Information Hierarchy

Theoretical Activity 3.3.3 Description of project task flow

Notes to the trainer:

- To deliver this content small groups may be used to describe task flow

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to answer the following questions:

1.What is a task flow?

2. Why project task flow is necessary in project requirement analysis?

Step 2: Ask trainees to present their answers

Step 3: Provides expert view.

Step 4: Address any questions or concerns and ask trainees to read the key reading 3.3.3 in the trainee manual.

Points to Remember

- Task flow is a representation of the steps and interactions a user takes to accomplish a specific task or goal within a software application.

- Task flow is necessary because it is used to:
  - ✓ Identify user needs
  - ✓ Uncover potential pain points
  - ✓ Inform the design and development process.

Practical Activity 3.3.4: Generating project task flow

Notes to the trainer

- This activity should take place in a computer lab where trainees should generate a task flow
- Avail a computer with installed Trello and ready to be used
- Avail a sitemap to define the structure of a task

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the topic and ask trainees do the task described below:

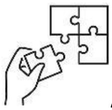
As a project requirement analyst, you are asked generate a task flow by using Trello software

Step 2: Monitor trainees to generate task flow
Step 3: Provide feedback on task flow generated
Step 4: Ask trainees to read key reading 3.3.4.
Step 5: Ask trainees to perform the task provided in application of learning 3.3.

Points to Remember

- **Steps to generate task flow by using Trello:**
  - ✓ Create a Trello Board
  - ✓ Set up Lists
  - ✓ Add Cards

- ✓ Provide Details
- ✓ Customize Cards
- ✓ Move Cards Across Lists
- ✓ Track Progress
- ✓ Collaborate and Communicate
- ✓ Set Due Dates and Reminders
- ✓ Iterate and Improve



Application of learning 3.3.

At HealthPlus Clinic, is launching a new patient portal to streamline appointment scheduling and access to medical records. it needs a requirement analyst to create a sitemap that outlines the structure of the portal, ensuring intuitive navigation for users. Additionally, develop a task flow that details the steps patients will take to book appointments, view test results, and communicate with healthcare providers.

Checklist:

Criteria	Indicators	Observation	
		Yes	No
Sitemap is well created	1.Main pages or modules are Identified		
	2.Sub-Pages or Screens are identified		
	3.Navigation Flow is defined		
	4.Relationships and Dependencies are established		
	5.Information Hierarchy is created		
Project task flow is well generated	6.Trello Board is created		
	7.Lists are set up		
	8.Cards are added		
	9.Details are provided		

Learning outcome 3 end assessment

Written assessment

Question 1: ………**User story**…………… is a concise, informal description of a specific feature or functionality from the perspective of an end user or customer.

a. Project backlog
b. User story
c. Audience

Question 2: From the below list tick, the parts of a user story?

- ☐ Customer
- ☐ User
- ☐ Role
- ☐ Objective
- ☐ Benefit
- ☐ All the above

Question 3: write **True** for the correct statements and **False** for incorrect statements

1. **A project backlog** is a prioritized list of all the work items that need to be completed for a project. **True**
2. **A project backlog** will have no end date and be used continuously throughout the lifecycle of a product. **False**
3. **The project backlog** is typically managed by the product owner or project manager. **True**

Question 4: The flowing list include elements of project backlog except:

- ○ Identifier
- ○ User story
- ○ Role
- ○ Priority

Question 5: The use of sitemap is to:

a) Serves as a navigational aid by outlining the website's structure and helps users find information.
b) Crawl a website more effectively, as they cannot provide a guide to the site's content and organization.

Question 6: based on provided characteristics differentiate XML from HTML site map by ticking in appropriate cell.

Characteristics	XML	HTML
Intended for search engines	√	
Intended for users		√
Helpful for providing a structured list of links to pages within the site		√
Able to include URLs in any order	√	
Not designed for human readability or navigation	√	

Question 7: Write **True** to the correct statements and **False** to wrong statements

a) Task flow is a representation of the steps and interactions a user takes to accomplish a specific task or goal within a software application. **True**
b) A well generated task flow covers users pain points **False**
c) Site map Inform the design and development process False
d) It maps out the sequence of actions and screens that a user encounters, highlighting the path they follow to complete a particular task. **True**

Practical assessment

KABONA TSS is a school, which is located in BURERA district. It wishes to deploy a student information (MIS) system to manage and keep a track of records about the student's information easily. The processes of implementing this software project are ongoing and all requirements have been collected, and the rest is the creation of User story and elaboration of task flow of the project. Therefore, the management of KABONA TSS wishes a software project Analysist to perform the following tasks:

a) Create a site map of the project
b) Generate task flow of the project

Checklist:

Criteria	Indicators	Observation	
		Yes	No
User story is well created	1.Users are Identified		
	2.User's Goal is Defined		
	3.User Story Title is provided		
Project backlog is well created	4.Requirements are Prioritized		
	5.Acceptance Criteria is Defined		
	6.Effort is Estimated		
	7.User story is Documented and Organized		

Sitemap is well created	8.Main pages or modules are Identified		
	9.Sub-Pages or Screens are identified		
	10.Navigation Flow is defined		
	11.Relationships and Dependencies are established		
	12.Information Hierarchy is created		
Project task flow is well generated	13.Trello Board is created		
	14.Lists are set up		
	15.Cards are added		
	16.Details are provided		
Decision			

Further information to the trainer

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