Capstone Project

Grade 6

Digital Solutions for Everyday Problems

Objective

Students will create a digital portfolio using various software tools to address real-world challenges in computing, data analysis, digital art, web development, and basic programming.

Session 1: Data Analysis and Visual Representation with Excel and Krita

Activities:

1. **Excel Data Analysis**
   - ❑ **Task:**
     - ✦ Students will gather sample data (e.g., monthly expenditure, exam scores, or product sales) and enter it into an Excel sheet.
   - ❑ **Skills Practiced:**
     - ✦ Use formulas for calculations (SUM, AVERAGE).
     - ✦ Create charts (Bar, Pie, Line) to visualize data.
     - ✦ Apply formatting for clarity and visual appeal.
2. **Digital Art with Krita**
   - ❑ **Task:**
     - ✦ Using Krita, students will create a digital poster that represents their findings visually, incorporating graphs from Excel and any additional graphical elements.
   - ❑ **Skills Practiced:**
     - ✦ Basic drawing tools and brush customization.
     - ✦ Layer management and image export.

Outcome for Session 1:

A fully formatted Excel sheet with data visualizations and a Krita poster that visually summarizes the data insights.

Session 2: Web Development Concept

Activities:

1. **HTML and CSS Basics**
   - ❑ **Task:**
     - ✦ Students will create a basic webpage using HTML5 to display their findings from Session 1. The webpage should include headings, paragraphs, and images of charts or posters created in the previous session.
   - ❑ **Skills Practiced:**
     - ✦ Structuring a webpage with basic HTML tags.
     - ✦ Inserting images with the <img> tag.
     - ✦ Organizing content logically within HTML tags.
2. **Styling the Webpage with Inline CSS**
   - ❑ **Task:**

     Students will apply inline CSS to the created webpage to enhance its appearance. They will add styling to change font colors, add background colors, and modify font sizes.
   - ❑ **Skills Practiced:**
     - ✦ Applying inline CSS to HTML elements.
     - ✦ Changing font colors and sizes using CSS.
     - ✦ Enhancing visual appeal with background colors and image styling.

Outcome for Session 2:

Students will create a basic HTML webpage displaying findings with images and organized content. They'll enhance this with inline CSS for colors, fonts, and backgrounds to improve visual appeal.

Session 3: Flowcharts and Python Programming

Activities:

1. **Flowchart Design**
   - ❑ **Task:**
     - ✦ Students will create a flowchart representing the logic behind the gathered data in Session 1.
   - ❑ **Skills Practiced:**
     - ✦ Understanding decision-making and flow control in logic design.
     - ✦ Using software (for example, MS Word) or online flowchart generators.
2. **Python Programming**
   - ❑ **Task:**

     Write a Python program that performs a simple task related to their data, such as calculating totals or generating random recommendations based on input data.

❑ **Skills Practiced:**

- ✦ Writing Python code with conditional statements and loops.
- ✦ Creating and using functions.

Outcome for Session 3:

A complete flowchart for their logic and a Python script that automates a part of their data analysis or user interaction.

Final Submission Deliverables:

- ✦ Excel file with data and visualizations.
- ✦ A Krita poster.
- ✦ HTML webpage showcasing the data.
- ✦ Flowchart and Python code file.

This project gives students a hands-on opportunity to explore multiple computer science applications and present integrated digital solutions.