

# Information Technology



## Practical Assessment Task (PAT) Grade 12 – 2025

# Task Guidelines

## INTRODUCTION

### Description

The Practical Assessment Task (PAT) is an assessment of a learner's individual interaction with the programming languages they have worked with, as well as the various application packages they have encountered. The PAT is to be completed during the course of most of the Grade 12 year and should be formatively assessed so that the learners have the opportunity to submit their best work. The information will finally be presented in several documents to communicate a solution in an integrated manner.

### Purpose

The purpose of the PAT is to allow learners to demonstrate their skills in using the programming language that they have studied, i.e. Java or Delphi, to create an application that provides a solution to a specific problem.

This project will form 25% (100 marks) of the overall Grade 12 assessment.

### Skills required

All skills acquired during the Grades 10–12 Information Technology curriculum, will serve as guidelines to the minimum skills that should be demonstrated in the PAT.

### Process

The PAT involves the learner choosing a scenario, finding and accessing information for the scenario, and developing a solution for that scenario. The solution must take into account managing and accessing stored data for the scenario.

The PAT must be seen as a process that includes planning a solution proposal. It should be gradually completed over a period of a few months, and evidence of planning should be provided. This project should allow for independent thought and creative thinking.

### Composition of the PAT

The PAT involves the following documents and a coded application. Every document must include a title page and a table of contents.

- ***Specifications Document – Phase 1***

This document details a summary of the project, the motivation for creating such a project accompanied by relevant research, the program's functions, the user interface, and how data will be stored.

- ***Design Document – Phase 2***

This document is to detail the actual design elements of the program, namely:

- User interface design (what the screens look like and what happens on them).
- Program flow (how the program works – linked to the interface).
- Class design (what the classes are required, their fields and methods).
- Data storage design (what the persistent storage structure is).
- Explanation of primary and secondary storage (justification for storage decisions).

- ***Coding – Phase 3***

This phase requires an application to be developed based on Phase 1 and Phase 2, where emphasis must be placed on:

- Comments for all the methods.
- Separation of UI from working code.
- Communication using typed methods (functions) and parameters.
- Good general programming techniques (naming, indentation, appropriate data structures, etc.).
- Good use of persistent storage.
- Defensive programming, including exception handling.
- Fulfilment of specifications.
- User experience.

- ***Technical Document – Phase 4a***

This document outlines the externally sourced code, an explanation of critical algorithms, and the advanced techniques used.

- ***Testing Document – Phase 4b***

This document outlines the evaluation of the program, functional testing of the program and testing of two input variables.

## **Review and monitoring**

As this project has a large scope, much of the work will have to be done outside of class time. The entire process will be facilitated and monitored by the educator, who will provide timeframes for checking and submitting the various phases. Continuous checking and feedback at regular intervals will ensure that learners obtain the best possible mark. Phases 3 and 4 will be assessed when they are presented and in conjunction with an interview with the learner by the educator.

## Resources

Learners are encouraged to use subroutines/classes/units from other programmers to improve the quality of their project. When Generative AI code is used, learners must acknowledge and explain their usage of Generative AI in terms of content, process, and resulting product.

It is the learner's responsibility to ensure that all borrowed, or AI-generated code is properly referenced (preferably using the Harvard standard) and acknowledged.

Borrowed or generated code may be used for this task up to a **maximum of 20** per cent only from all the learner's code.

Educators will interview learners to establish and ascertain how much borrowed code is in the project.

## Assessment Rubric

A detailed assessment rubric is provided to facilitate marking and internal and external moderation of the PAT. The rubric stipulates the evidence required for each Phase of the PAT. The PAT will be marked and moderated as the phases are completed to ensure the learner does the work independently.

Learners are encouraged to study the assessment rubric to fulfil the requirements of each phase and help them improve on the subsequent phases.

The four phases should be assessed as follows:

| Phase | Details                 | Marks | Recommended class time spent on each phase | Recommended submission time frame |
|-------|-------------------------|-------|--|-----------------------------------|
| 1     | Specifications Document | 17    | 1 week                                     | February                          |
| 2     | Design Document         | 30    | 3 weeks                                    | April–May                         |
| 3     | Coding                  | 38    | 6 weeks                                    | July–August                       |
| 4(a)  | Technical Document      | 8     | 1 week                                     | August–September                  |
| 4(b)  | Testing Document        | 7     | 1 week                                     | August–September                  |
| TOTAL |                         | 100   | 12 weeks                                   |                                   |

## Topic and Content

It is recommended that learners consider solutions to national or global problems described in the National Development Plan 2030 (NDP 2030). These problems described in the NDP are related to the 17 global goals listed in the Sustainable Development Goals (SDGs) set by the United Nations.

The topic should allow for independent thought and creative thinking and may be a solution to a real-world problem, a business management system or even a game.

The topic can be implemented on one or more desktop computers, as a mobile application, or on a separate hardware device such as Raspberry PI or Arduino, or any combination thereof.

Educators must ensure that learners have written a substantial amount of their solution and have not relied too heavily on utilities and functions provided by a solution development tool or Generative AI.

To reduce the risk of plagiarising an existing application, many of which are available on the Internet, the learner must **code a completely new solution for the topic and scenario**.

Learners are expected to research existing solutions to their project to determine whether there is an existing solution and will have to indicate how their project differs from existing solutions.

The following types of projects will be accepted:

- Projects involving the use of multiple database tables/text files
- Projects involving the use of data collected via the use of sensors
- Games or Gaming engines

**All projects will be accepted on the premise that the following are strictly adhered to:**

- A considerable amount of meaningful data **MUST** be stored on a secondary storage device.
- Significant use of backend classes is evident where the bulk of the processing occurs.

## Planning and Submission of Phases

It is vital that this project is started early in the year and that learners are given timeframes for when Phases or aspects of Phases are due.

Educators should check learners' topics early and advise on scope and functionality. This must be done to ensure that learners are on the right path from the outset.

Educators may want to dedicate a lesson to the PAT timetable to check learners' progress and advise them periodically. Learners must also address any changes in previous phases.

The following planning/checklists will be used **in conjunction with the PAT Assessment Rubric** to ensure that requirements are met.

**PHASE 1: SPECIFICATIONS DOCUMENT****Learner Name:** \_\_\_\_\_ **Due Date:** \_\_\_\_\_**Refer to Phase 1 in the Assessment Rubric.**

In completing this phase, the learners will have to:

- Provide a brief description, including the purpose of the project, a summary of functions and a description of the target user group(s). Expand on it to describe exactly what needs to be done in your own words.
- Conduct research to determine if there are existing projects and provide an explanation of how the proposed project will differ from existing projects.
- List exactly what the functions of the program are going to be.
- List the specifications of the user interface (what it will look like).
- List and group all data required.

**Submission of evidence**Hand in a **Specifications Document** prepared in an appropriate application, which contains the following:

| <b>Aspect</b>           | <input type="checkbox"/> /☒ | <b>Comment</b> |
|-------------------------|-----------------------------|----------------|
| Problem Summary         |                             |                |
| Research and Motivation |                             |                |
| Program Functions       |                             |                |
| User Interface          |                             |                |
| Permanent Data required |                             |                |

**PHASE 2: DESIGN DOCUMENT****Learner Name:** \_\_\_\_\_ **Due Date:** \_\_\_\_\_**Refer to Phase 2 in the Assessment Rubric.**

In completing this phase, the learners will have to:

- Provide a user interface design.
- Provides a flow diagram of how the program works.
- Provide a class design.
- Provide a Secondary Storage Design.
- Provide an explanation for Secondary Storage Design.
- Provide an explanation for how Primary Data Structures relate to Secondary Storage.

**Submission of evidence**Hand in a **Design Document** prepared in an appropriate application, which contains the following:

| <b>Aspect</b>  | <input type="checkbox"/> /☒ | <b>Comment</b> |
|--|-----------------------------|----------------|
| User Interface Design  |                             |                |
| Program Flow Diagram   |                             |                |
| Class Design   |                             |                |
| Secondary Storage Design   |                             |                |
| Explanation of Secondary Storage Design                                |                             |                |
| Explanation of how Primary Data Structures relate to Secondary Storage |                             |                |

**PHASE 3: CODING****Learner Name:** \_\_\_\_\_ **Due Date:** \_\_\_\_\_**Refer to Phase 3 in the Assessment Rubric.**

In completing this task, the learners will have to write the actual code for the intended program and:

- Provide comments in code.
- Ensure separation of UI from Working Code.
- Ensure that inter-code communication between classes and within a class.
- Show good general programming techniques.
- Provide good use of Querying and Manipulation of Data in Secondary Storage.
- Illustrate defensive programming techniques.
- Ensure the fulfilment of program functions, as specified.
- Provide an overall excellent user experience.
- Provide all **electronic files** used for processing/manipulating the data and running the program.

**Submission of evidence (Educator to interview learners)**

Hand in the entire program containing the **code** and necessary files for the program to run.

| Aspect                             | ✓/✗ | Comment |
|------------------------------------|-----|---------|
| Comments                           |     |         |
| Separation of UI from Working Code |     |         |
| Inter-Code Communication           |     |         |
| Good General Techniques            |     |         |
| Persistent Storage/Querying        |     |         |
| Fulfilment of Specifications       |     |         |
| User Experience                    |     |         |



**PHASE 4: TECHNICAL DOCUMENT & TESTING DOCUMENT****Learner Name:** \_\_\_\_\_ **Due Date:** \_\_\_\_\_**Please refer to Phase 4 in the Assessment Rubric.**

In completing this task, the learners will have to:

- Provide references to externally sourced code.
- Explain which algorithms are considered critical to the functioning of the program.
- Explain the various advanced techniques that were used.
- Provide an evaluation of the Programmed Solution.
- Provide TWO sets of Functional testing.
- Provide Test Plan and Results for TWO input variables.

**Submission of evidence (Educator to interview learners)**Hand in a **Technical Document** and a **Testing Document** prepared in an appropriate application, which contains the following:

| Aspect  | <input checked="" type="checkbox"/> / <input type="checkbox"/> | Comment |
|---|--|---------|
| Externally Sourced Code                       |  |         |
| Explanation of Critical Algorithms            |  |         |
| Advanced Techniques                           |  |         |
|   |  |         |
| Evaluation of Programmed Solution             |  |         |
| Functional Testing                            |  |         |
| Test Plan and Results for TWO Input Variables |  |         |



## INFORMATION TECHNOLOGY PRACTICAL ASSESSMENT TASK DECLARATION

|                            |  |
|----------------------------|--|
| <b>Learner Exam Number</b> |  |
|----------------------------|--|

### DECLARATION BY THE LEARNER:

I, \_\_\_\_\_ (learner full name)  
hereby confirm that:

- I have read and understood my school's policy relating to Academic Dishonesty.
- I have adhered to my school's policy regarding Academic Dishonesty.
- The PAT submitted has been completed in full by me.
- I have clearly indicated in my PAT any sections of work/code that were generated or assisted by AI or where code was borrowed, giving credit where it is due.
- I acknowledge that I may have to verbally explain my work presented in this PAT.
- I further declare that my PAT code comprises 20% or less code that is borrowed or from Generative AI, as required by the IEB.

Acknowledgement of AI tools used:

| AI Tools used | Purpose | Prompts used |
|---------------|---------|--------------|
|               |         |              |

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Learner

### DECLARATION BY EDUCATOR:

I, \_\_\_\_\_ (educator full name & title)  
at \_\_\_\_\_ (name of school)  
declare that the work provided by this learner has been monitored and checked for plagiarism.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_  
Educator