



Google Workspace for Education (GWE): A Dual Framework for Modern Learning and School Management

Roma, 05.12.2025

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02 Understanding GWE

03 Pedagogical Innovation

04 Administrative Efficiency

05 GWE Ecosystem

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07 Now it's your turn



PART 01

Digital Shift in Education



The Evolving Educational Landscape

- The COVID-19 pandemic accelerated digital transformation into the school;
- Institutions shifted rapidly to online teaching;
- Digital infrastructure became essential for pedagogical continuity;
- GWE emerged as a key ecosystem.

From Crisis to Innovation



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Strategic re-evaluation:
Reassessing pedagogical and
operational frameworks.



Integrated Solutions:
Adoption of platforms for robust
collaboration and instruction.



Paradigm Shift: A move from
traditional models to digital-first
strategies.

A fundamental re-evaluation of pedagogical continuity plans and operational models.

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Redefining Educational Continuity



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Pedagogical continuity in the digital age is the ability to maintain quality learning experiences regardless of physical location. It requires more than just access; it demands integrated, cloud-based platforms. (GK Sidhu et. al.)



Seamless Access

**Uninterrupted connection to
learning materials.**



Collaborative Learning

**Continuous interaction between
students and teachers.**



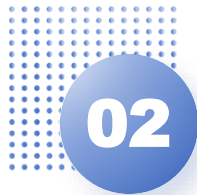
Consistent Quality

**Maintaining high standards in any
learning environment.**

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PART 02

Understanding GWE

Google Workspace for Education



- Cloud-based suite launched in 2006 (formerly G Suite for Education).
- Integrates tools for teaching, collaboration, and administration.
- Accessible anywhere, cross-platform, and cost-free for schools.

Core Components of GWE



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Document Creation

Docs, Sheets, Slides for real-time co-editing.



Communication

Gmail, Meet, and Chat for seamless connection.



Classroom Management

Classroom and Forms for assignments and assignments and quizzes.



Organization & Storage

Drive with unlimited storage and Calendar
Calendar for scheduling.



Administration & Security

Admin panel for user management and Vault for eDiscovery, data retention, and audit reports.

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Scalability & Accessibility



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**Scales from small schools
to large districts.**



For any devices



**Accessible from any
internet-connected
location**

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Cost & Resource Optimization



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Zero Licensing Costs

The core suite is free for educational institutions, directly saving budget.



Reduced Infrastructure

Cloud-hosting minimizes the need for costly on-site servers and hardware.



Optimized Staffing

Reduces the need for dedicated on-site system administrators and content managers.

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PART 03 Pedagogical Innovation

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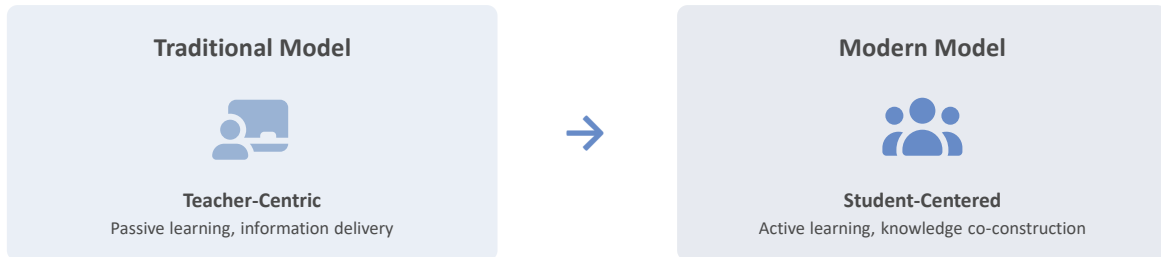
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Transforming the Learning Experience



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- Promotes student-centered, collaborative learning;



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- Encourages engagement and interaction beyond physical classrooms;

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Enables flexible, self-paced learning;

This gives students the flexibility to learn "at their own pace according to their own convenience."



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- Develops 21st-century skills: **'4C' competencies**



Communication



Collaboration



Critical Thinking



Creativity

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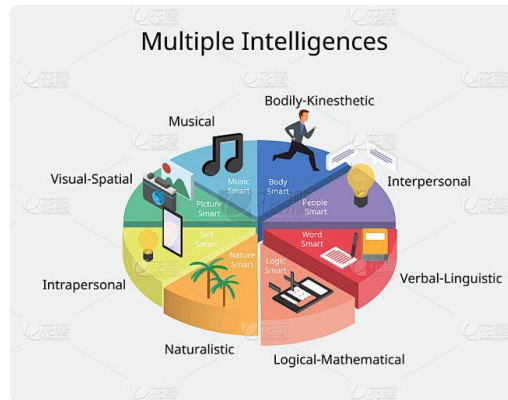
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Personalized learning can be explored and provided

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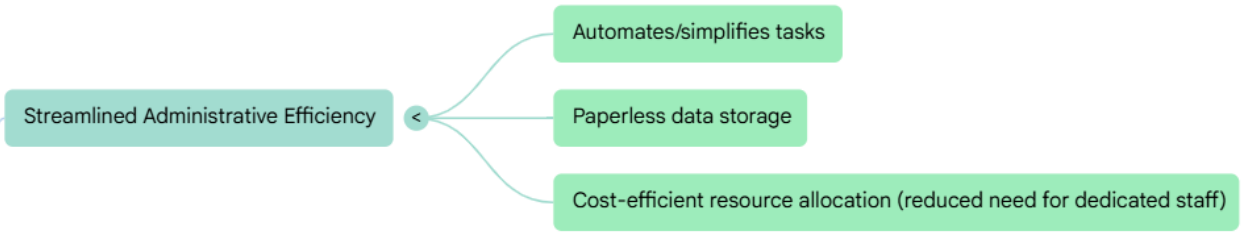
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Management and Operations



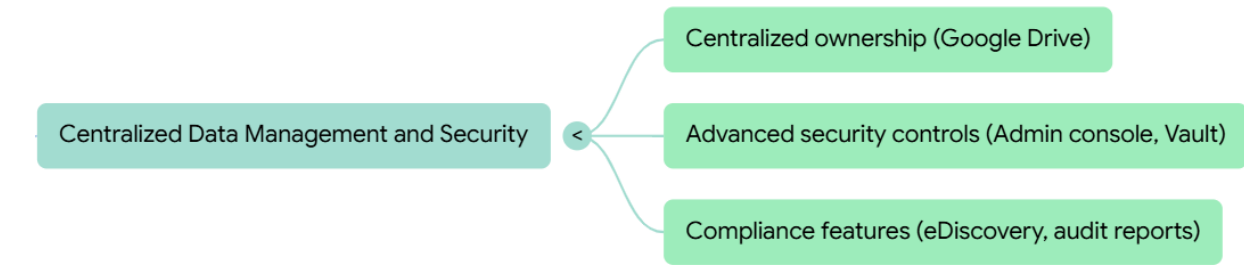
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Management and Operations



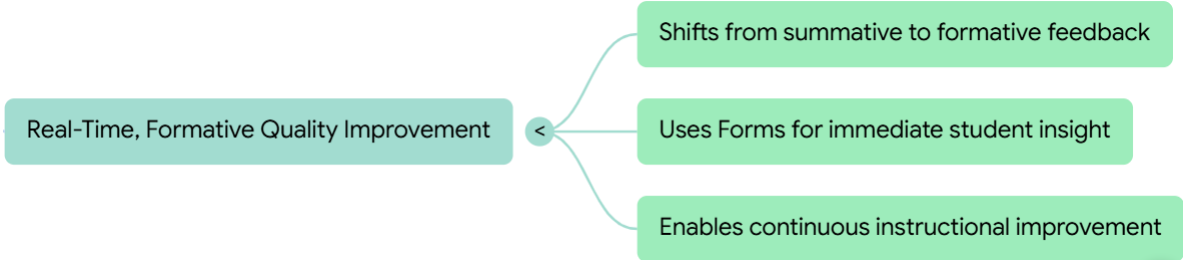
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PART 05

Ecosystem

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GWE: A Unified Digital Ecosystem



Pedagogical Innovation

Enhancing the learning experience through collaboration, collaboration, engagement, and skill development.



Operational Efficiency

Optimizing school management through streamlined operations and data-driven insights.

it is an integrated ecosystem designed to simultaneously serve two core missions of a modern educational institution.

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PART 06

Automation & Automation Examples

Automation: Why?



➤ Why is the automation necessary in schools?

- reduce teacher efforts
- improve the efficiency of the process

Automation: HOW TO DO?



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➤ Our tools ?

- Google Workspace for Education (Drive, Docs, Sheets, etc..) but...

➤ we need a "bridge" to link between them

- Google Apps Script

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Automation: HOW TO DO?



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➤ Apps Script is:

- a cloud-based JavaScript platform powered by Google Drive that lets you integrate with and automate tasks across Google products;
- a rapid application development platform that makes it fast and easy to create business applications that integrate with Google Workspace.

<https://developers.google.com/apps-script>

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Automation: HOW TO DO?



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➤ Apps Script can do:

- Add custom menus, dialogs, and sidebars to Google Docs, Sheets, and Forms;
- Write custom functions and macros for Google Sheets;
- Publish web apps — either standalone or embedded in Google Sites;
- Interact with other Google services, including AdSense, Analytics, Calendar, Drive, Gmail, and Maps;
- Build lightweight add-ons for improving workflow efficiency when working with Google Workspace

<https://developers.google.com/apps-script>

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Automation: HOW TO DO?



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➤ Apps Script can do:

```

1 // To learn how to use this script, refer to the documentation:
2 // https://developers.google.com/apps-script/samples/automations/employee-certificate
3
4 /*
5  * Copyright 2022 Google LLC
6  *
7  * Licensed under the Apache License, Version 2.0 (the "License");
8  * you may not use this file except in compliance with the License.
9  * You may obtain a copy of the License at
10  *
11  * https://www.apache.org/licenses/LICENSE-2.0
12  *
13  * Unless required by applicable law or agreed to in writing, software
14  * distributed under the License is distributed on an "AS IS" BASIS,
15  * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
16  * See the License for the specific language governing permissions and
17  * limitations under the License.
18  */
19
20 const slideTemplateId = "Hs2V2pehmcZnlqkU7Jxw0r2D0e3J0e22_x30Q";
21 const templateFolder = "eT2r0wMw0kAc0p-D0u0Mg0B"; // Create an empty folder in Google Drive
22
23 /**
24  * Creates a custom menu 'Appreciation' in the spreadsheet
25  * with drop-down options to create and send certificates
26  */
27 function onOpen() {
28   const ui = SpreadsheetApp.getUi();
29   ui.createMenu('Appreciation')
30     .addItem('Create certificates', 'createCertificates')
31     .addSeparator()
32     .addItem('Send certificates', 'sendCertificates')
33     .addToUi();
34 }
35
36 /**
37  * Creates a personalized certificate for each employee
38  * and stores every individual Slides doc on Google Drive
39  */
40 function createCertificates() {
41   // Load the Google Slides template file
42   const template = DriveApp.getFileById(slideTemplateId);
43
44   // Get all employee data from the spreadsheet and identify the headers
45   const sheet = SpreadsheetApp.getActiveSpreadsheet().getActiveSheet();
46   const values = sheet.getDataRange().getValues();

```

<https://developers.google.com/apps-script>

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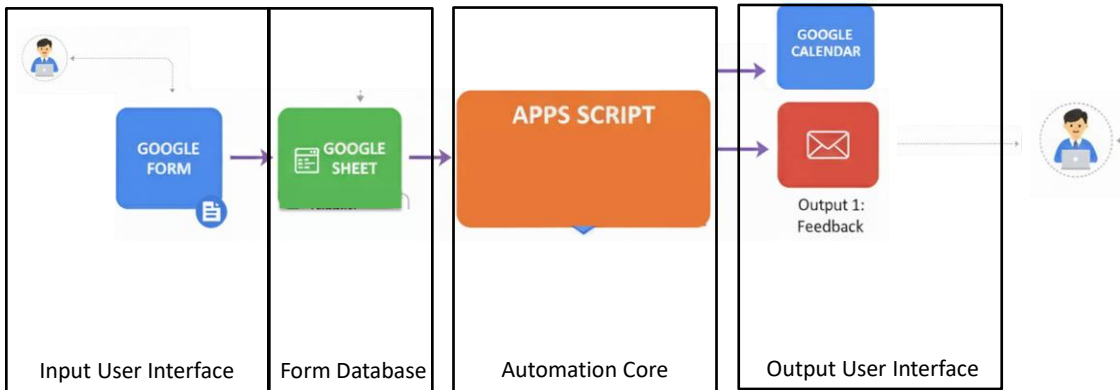
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Automation: School Workflow Example



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- It has to be very simple
- We interact with several people who have basic digital competencies.
- The core of automation is transparent for the user.

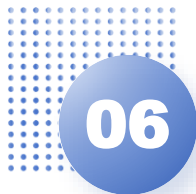
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PART 06

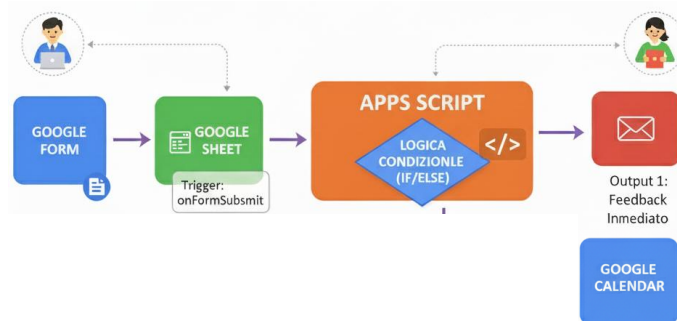
Automation Example N. 1

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Automation: Teaching & Learning Example



Teaching & Learning Example: The Code

- When a student submits a quiz (via a Google Form), this script **automatically grades it**, analyzes *which* topics the student failed (not just the total score), and then **automatically schedules personalized makeup sessions** in the teacher's Google Calendar, inviting the student to each one.

Teaching & Learning Example



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- ✓ The student is the principal actor
- ✓ The test can be centered on the student skills
- ✓ The student evaluate himself in real-time
- ✓ The student interacts with the test using his preferred device



Personalized Learning Benefits

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Teaching & Learning Example



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- ✓ The teacher acts in "background mode";
- ✓ The task of correcting tests have been completely eliminated;
- ✓ The teacher approaches to the student in a constructive way:
Feedback is not necessarily aimed at evaluating the student



Easing working load of the teacher

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Teaching & Learning Example: HOW it Works



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- The teacher prepares the test using Google Form and set all the inputs for the automatic evaluation :

Sezione 1 di 5

Esempio#1: Fondamenti di Elettricità (Valutazione e Recupero)

Valutazione intermedia sui temi di Elettrostatica, Corrente Continua e Leggi di Ohm. In caso di insufficienza, i risultati verranno utilizzati per definire un piano di recupero personalizzato.

Email *

Indirizzo email valido

Questo modulo raccoglie gli indirizzi email. [Modifica impostazioni](#)

User (Student) Interface

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- To the Form is linked a Google Sheet:

Informazioni cronologiche	Indirizzo email	Punteggio	Nome	Cognome	Classe	Q1 (T1): L'unità di misura della carica elettrica	Q2 (T1): Due corpi con carica elettrica di segno
14/10/2025 20.46.53	salvatore.esposito@ipasanbenedetto.edu.it	7 / 16	Salvatore	Esposito	5E	a) Coulomb (C),	b) Attrarsi
17/10/2025 11.13.15	salvatore.esposito@gmail.com	7 / 16	Salvatore	Libero	3A	a) Coulomb (C),	b) Attrarsi
17/10/2025 11.14.48	salvatore.esposito@ipasanbenedetto.edu.it	7 / 16	Tito	Stagno	3e	a) Coulomb (C),	b) Attrarsi
17/10/2025 11.24.59	salvatore.esposito@ipasanbenedetto.edu.it	7 / 16	Libero	Ciro	20E	a) Coulomb (C),	b) Attrarsi
22/10/2025 9.34.29	uggo.vitti@ipasanbenedetto.edu.it	11 / 16	u	v	5c	a) Coulomb (C),	c) Non interagire,
22/10/2025 10.15.23	salvatore.esposito@ipasanbenedetto.edu.it	13 / 16	Salvatore	Esposito	5A	a) Coulomb (C),	b) Attrarsi
22/10/2025 10.23.14	salvatore.esposito@ipasanbenedetto.edu.it	13 / 16	Salvatore	Esposito	5A	a) Coulomb (C),	b) Attrarsi
22/10/2025 10.33.18	salvatore.esposito@ipasanbenedetto.edu.it	10 / 16	Salvatore	Esposito	4r	a) Coulomb (C),	b) Attrarsi
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22/10/2025 11.04.11	salvatore.esposito@ipasanbenedetto.edu.it	10 / 16	Salvatore	Esposito	3e	a) Coulomb (C),	b) Attrarsi
22/10/2025 11.07.21	salvatore.esposito@ipasanbenedetto.edu.it	10 / 16	Salvatore	Esposito	3e	a) Coulomb (C),	b) Attrarsi
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22/10/2025 11.16.49	salvatore.esposito@ipasanbenedetto.edu.it	8 / 16	Salvatore	Esposito	4r	b) Volt (V),	b) Attrarsi
22/10/2025 11.20.02	salvatore.esposito@ipasanbenedetto.edu.it	14 / 16	Salvatore	Esposito	4r	b) Volt (V),	b) Attrarsi
22/10/2025 11.22.57	salvatore.esposito@ipasanbenedetto.edu.it	16 / 16	Lisio	Tito	4r	a) Coulomb (C),	b) Attrarsi
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➤ Google Sheet:

DB
Control Panel

Informazioni cronologiche	Indirizzo email	Punte	Nome	Cognome	Cla	Cl (TT)	Lunedi di misura della carica eletta	Cl (TT)	Due corpi con carica elettrica di seg.
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22/10/2025 9.34.29	ugo.vitelli@ipasanbenedetto.edu.it	11/18	u	v	SC	a)	Coulomb (CL)	c)	Non intergrata
22/10/2025 10.15.23	salvatore.esposito@ipasanbenedetto.edu.it	10/18	Salvatore	Esposito	SA	a)	Coulomb (CL)	b)	Altriusi
22/10/2025 10.23.14	salvatore.esposito@ipasanbenedetto.edu.it	10/18	Salvatore	Esposito	SA	a)	Coulomb (CL)	b)	Altriusi
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22/10/2025 10.40.40	salvatore.esposito@ipasanbenedetto.edu.it	10/18	Salvatore	Esposito	AR	a)	Coulomb (CL)	b)	Altriusi
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22/10/2025 10.16.40	salvatore.esposito@ipasanbenedetto.edu.it	10/18	Salvatore	Esposito	AR	a)	Coulomb (CL)	b)	Altriusi
22/10/2025 10.39.01	salvatore.esposito@ipasanbenedetto.edu.it	10/18	Salvatore	Esposito	AR	a)	Coulomb (CL)	b)	Altriusi
22/10/2025 11.04.11	salvatore.esposito@ipasanbenedetto.edu.it	10/18	Salvatore	Esposito	DA	a)	Coulomb (CL)	b)	Altriusi
22/10/2025 11.07.21	salvatore.esposito@ipasanbenedetto.edu.it	10/18	Salvatore	Esposito	DA	a)	Coulomb (CL)	b)	Altriusi
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22/10/2025 11.16.49	salvatore.esposito@ipasanbenedetto.edu.it	8/18	Salvatore	Esposito	ar	b)	VAR (V)	b)	Altriusi
22/10/2025 11.20.02	salvatore.esposito@ipasanbenedetto.edu.it	14/18	Salvatore	Esposito	ar	b)	VAR (V)	b)	Altriusi
22/10/2025 11.20.27	salvatore.esposito@ipasanbenedetto.edu.it	14/18	Lelio	Tibi	ar	a)	Coulomb (CL)	b)	Altriusi
22/10/2025 11.20.23	salvatore.esposito@ipasanbenedetto.edu.it	10/18	Salvatore	Esposito	ar	a)	Coulomb (CL)	b)	Altriusi

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	A	B	C	D	E	F
ISSA_S.ESPOSITO	T1	T1	T2	T2	T3	T3
ISSA_BENEDETTO_CORBETTE	2	2	2	2	2	2
ISSA_PUNTEFREGI_CORBETTE	2	2	15	15	15	15
Data di fine del Progetto?	12/10/2025 16:00:00	12/10/2025 17:00:00	13/10/2025 16:00:00	13/10/2025 17:00:00	14/10/2025 16:00:00	14/10/2025 17:00:00
NOME SOGGERNO	2					

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DB
Control Panel



Informazioni cronologiche	Indirizzo email	Punte	Nome	Cognome	Cla	Cl (TT)	Lunedi di misura della carica eletta	Cl (TT)	Due corpi con carica elettrica di seg.
14/10/2025 20.40.33	salvatore.esposito@ipasanbenedetto.edu.it	7/18	Salvatore	Esposito	DE	a)	Coulomb (CL)	b)	Altriusi
17/10/2025 11.18.19	salvatore.esposito@gmail.com	7/18	Salvatore	Libero	DA	a)	Coulomb (CL)	b)	Altriusi
17/10/2025 11.14.48	salvatore.esposito@ipasanbenedetto.edu.it	7/18	Trino	Diagno	DA	a)	Coulomb (CL)	b)	Altriusi
17/10/2025 11.24.58	salvatore.esposito@ipasanbenedetto.edu.it	7/18	Libero	Cla	DBE	a)	Coulomb (CL)	b)	Altriusi
22/10/2025 9.34.29	ugo.vitelli@ipasanbenedetto.edu.it	11/18	u	v	SC	a)	Coulomb (CL)	c)	Non intergrata
22/10/2025 10.15.23	salvatore.esposito@ipasanbenedetto.edu.it	10/18	Salvatore	Esposito	SA	a)	Coulomb (CL)	b)	Altriusi
22/10/2025 10.23.14	salvatore.esposito@ipasanbenedetto.edu.it	10/18	Salvatore	Esposito	SA	a)	Coulomb (CL)	b)	Altriusi
22/10/2025 10.23.18	salvatore.esposito@ipasanbenedetto.edu.it	10/18	Salvatore	Esposito	ar	a)	Coulomb (CL)	b)	Altriusi
22/10/2025 10.40.40	salvatore.esposito@ipasanbenedetto.edu.it	10/18	Salvatore	Esposito	AR	a)	Coulomb (CL)	b)	Altriusi
22/10/2025 10.43.19	salvatore.esposito@ipasanbenedetto.edu.it	10/18	Salvatore	Esposito	ar	a)	Coulomb (CL)	b)	Altriusi
22/10/2025 10.16.40	salvatore.esposito@ipasanbenedetto.edu.it	10/18	Salvatore	Esposito	AR	a)	Coulomb (CL)	b)	Altriusi
22/10/2025 10.39.01	salvatore.esposito@ipasanbenedetto.edu.it	10/18	Salvatore	Esposito	AR	a)	Coulomb (CL)	b)	Altriusi
22/10/2025 11.04.11	salvatore.esposito@ipasanbenedetto.edu.it	10/18	Salvatore	Esposito	DA	a)	Coulomb (CL)	b)	Altriusi
22/10/2025 11.07.21	salvatore.esposito@ipasanbenedetto.edu.it	10/18	Salvatore	Esposito	DA	a)	Coulomb (CL)	b)	Altriusi
22/10/2025 11.13.88	salvatore.esposito@ipasanbenedetto.edu.it	10/18	Salvatore	esposito	ar	a)	Coulomb (CL)	b)	Altriusi
22/10/2025 11.16.49	salvatore.esposito@ipasanbenedetto.edu.it	8/18	Salvatore	Esposito	ar	b)	VAR (V)	b)	Altriusi
22/10/2025 11.20.02	salvatore.esposito@ipasanbenedetto.edu.it	14/18	Salvatore	Esposito	ar	b)	VAR (V)	b)	Altriusi
22/10/2025 11.20.27	salvatore.esposito@ipasanbenedetto.edu.it	14/18	Lelio	Tibi	ar	a)	Coulomb (CL)	b)	Altriusi
22/10/2025 11.20.23	salvatore.esposito@ipasanbenedetto.edu.it	10/18	Salvatore	Esposito	ar	a)	Coulomb (CL)	b)	Altriusi

S. ESPOSITO						
	A	B	C	D	E	F
ISSA_S.ESPOSITO	T1	T1	T2	T2	T3	T3
ISSA_BENEDETTO_CORBETTE	2	2	2	2	2	2
ISSA_PUNTEFREGI_CORBETTE	2	2	15	15	15	15
Data di fine del Progetto?	12/10/2025 16:00:00	12/10/2025 17:00:00	13/10/2025 16:00:00	13/10/2025 17:00:00	14/10/2025 16:00:00	14/10/2025 17:00:00
NOME SOGGERNO	2					

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Teaching & Learning Example: The Code



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ValutaEComunica()

Entry Point Function

01

Function Trigger

The valutaEComunica function is automatically triggered whenever a student submits a quiz via Google Form, initiating the automated grading and feedback process.

02

Data Extraction

It reads the new row in the RisposteTest sheet, capturing the student's name, email, name, email, their answers to each question, and the total score, forming the basis for further analysis.

03

Load Grading Information

It calls the caricaDatiCorretti function.

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caricaDatiCorretti()

Load Rules Function

01

Configuration Sheet Consultation

This function acts as the "brain" of the grading system. It reads the **'PannelloControllo'** (Control Panel) sheet to learn the rules of the test:

- Which **topic** (T1, T2, T3) each question belongs to.
- The **correct answer** for each question.
- The **points** each question is worth.
- The specific **date and time for the remediation session** (dataRecupero) for *each individual question*.
- It returns a complete "answer key" object to the main function.

02

Answer Key Formation

It returns a complete "answer key" object to the main function.

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`analisiGap()`

Load Rules Function

Loop Through Answers

01 The `analisiGap` function loops through each student answer, to the corresponding topic bucket based on predefined rules.

Normalization Process

02 It normalizes student responses to avoid format mismatches, ensuring that variations like A. or a are treated uniformly, maintaining grading consistency.

Aggregate Scores

03 After processing all answers, it aggregates scores for each topic, providing a detailed breakdown of the student's performance across different areas.

Identify Weaknesses

04 It flags any topic scoring below the 60% sufficiency threshold, identifying specific areas where the student needs improvement.

Output Lists

05 Two actionable lists: `temilnsufficienti` for failed topics and `domandeDaRecuperare` for incorrectly answered questions, guiding the next steps.

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`inviaEmailSuccesso()`

Info to the student

- If no topic is below 60% and no questions are wrong, the script calls `inviaEmailSuccesso` to send a congratulatory email to the student.

Remediation Trigger

- If any topic is insufficient or any answer is wrong, the script switches to remediation mode, initiating the recovery process.

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`inviaEmailRecupero()`

01

Remediation Trigger

If any topic is insufficient or any answer is wrong, the script switches to remediation mode, initiating the recovery process.

02

Calendar Event Creation

It creates calendar events for each required session, ensuring that the student has a clear schedule for remediation.

03

Detailed Notification

The script sends a detailed email summarizing deficits and appointments, then logs Recupero calendarizzato in the response sheet.

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Teaching & Learning Example: Observations



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Time Savings

The script saves teachers hours per quiz, automating grading, feedback, and scheduling, while providing students with immediate insights into their performance.

Future Enhancements

Future upgrades can include adaptive thresholds, parent notifications, further enhancing the script's capabilities (i.e. working not only with pre-defined test).

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PART 06

Automation Example N. 2

School Management Automation Example



➤ Book Your Lunch!

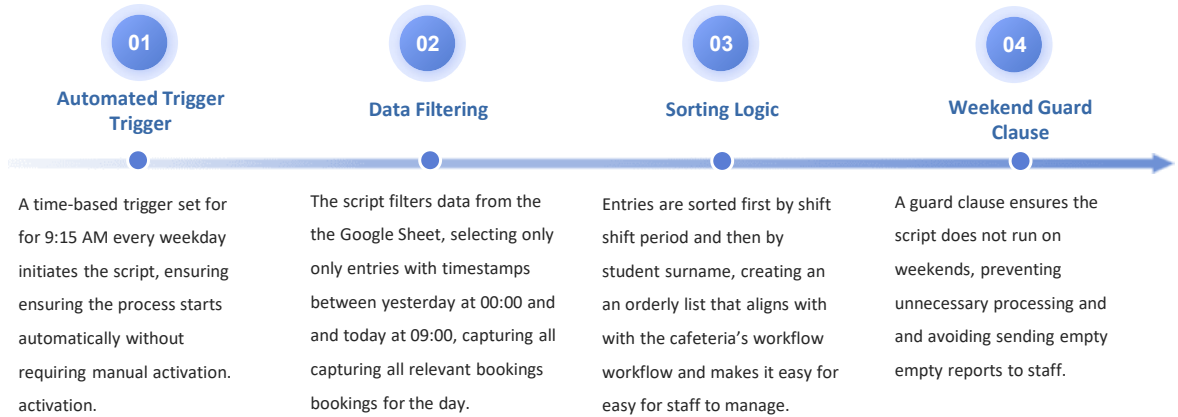
- ✓ Users submit a form for booking the meal
- ✓ Collects daily meal bookings from a Google Sheet.
- ✓ Generates formatted PDF reports.
- ✓ Automatically emails reports to staff each morning.
- ✓ Reduces waste and improves operational efficiency.

School Management Automation Example



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HOW it Works



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School Management Automation Example



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HOW it Works

Sorted Table Creation

The script sorts the data by shift and surname before writing it into table delivered as pdf file, ensuring the final report is easy to read



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Report Prenotazioni Mensa del 10/11/2025

Cognome	Nome	Turno
Antoniu	Andreea	Primo Turno
Di Marzio	Aurelio	Primo Turno
Marocco	Simone	Primo Turno
Mazarache	Davide	Primo Turno
Barca	Norma	Secondo Turno
Daianu	Alessandro	Secondo Turno
Di cintio	Lucia	Secondo Turno
Diogene	Alice	Secondo Turno
pierimarchi	Iorenzo	Secondo Turno

Totale Prenotazioni: 9

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School Management Automation Example: Observations



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Time Savings

By eliminating manual data handling, the automated system reduces the risk of errors in filtering, sorting, and emailing, leading to more reliable reports and in this way savings time for more critical task

Future Enhancements

The same automation pattern can be applied to other administrative tasks, such as attendance checks or equipment bookings, further streamlining operations.

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Stakeholders Across Both Frameworks



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➤ Teaching & Learning Example:

- Teachers – automated grading assistant;
- Students – personalized feedback and recovery;
- Management – real-time data tracking;

➤ School Management Example:

- Administrative staff – automated reporting;
- Support staff – efficient logistics;
- Parents/Students – accurate service records;

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Implementation Challenges



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- Infrastructure and connectivity gaps;
- Need for teacher digital literacy and training;
- Student digital citizenship and security;
- Resistance to change from traditional methods.

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Conclusion – A 21st-Century Educational Ecosystem



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GWE

- Integrates teaching, learning, and management;
- Encourage collaboration and innovation;
- Streamlines administrative operations;
- Represents a sustainable model for modern education;

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PART 07

Now it's your turn

Your Task: Send personalized appreciation certificates to employees



- We want automatically customize the Google Slides Employee Certificate template with employee data in Google Sheets, then send the certificates using Gmail.

<https://developers.google.com/apps-script/samples/automations/employee-certificate?hl=en>

Your Task: Send personalized appreciation certificates to employees



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- The script uses the Employee Certificate presentation template from Slides and a Sheets spreadsheet with the employee details.
- The script copies the template and replaces the placeholders with data from the spreadsheet.
- Once the script creates a slide for every employee, it extracts each individual slide as a PDF attachment and sends the certificates to the employees.

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Your Task: Send personalized appreciation certificates to employees



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- How could we improve the automation task?
 - For example, by checking the "STATUS" field, we avoid re-sending the certificate to the employers who have already received it; is it sufficient?

<https://notebooklm.google.com/notebook/c544c87b-1e97-4f09-a08f-a9e3c24ce68f>

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Your Task:



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- How can modify this code for sending the parking sticker to the employers or visitors
- How can improve this new automation task?