

# Use Cases

**Use Case Name:** Input Firestore Data

**Use Case Number:** UC1

**Author(s):** Bilal Baloch

**Actor(s):** Employee

**Overview:** The employee will input a document into a firestore database collection

**References:**

**Related Use Cases:** None

**Typical Flow Description (include precondition & postcondition):** The employee will input firestore data. There will be non tabular data, which includes information regarding the customer's information unrelated to the item's description, quantity purchased, and price. Upon creation of the document, the system will be triggered to begin execution. Precondition: None, Postcondition: Document created.

**Alternative Flow Description (include precondition & post-condition):** No input of firestore data. Precondition: None, Postcondition: No document created.

**Use Case Name:** Download Template Status

**Use Case Number:** UC2

**Author(s):** Bilal Baloch

**Actor(s):** Employee

**Overview:** The employee will receive a status indicating if the document has been downloaded into the cloud function while it is running.

**References:**

**Related Use Cases:** UC 1

**Typical Flow Description (include precondition & postcondition):** The system will print a statement confirming a successful execution of downloading the blank latex template. Precondition: Blank template exists in bucket in GCS named texbuckets. Postcondition: Downloaded template in cloud function while running.

**Alternative Flow Description (include precondition & post-condition):** The system will print an error message indicating it is unable to download the blank template from GCS.. Precondition: None, Postcondition: No template downloaded. Error message.

**Use Case Name:** Send Http Requests

**Use Case Number:** UC3

**Author(s):** Bilal Baloch

**Actor(s):** Employee

**Overview:** The employee will receive a print statement indicating if the http requests were sent to the Cloud run service and the cloud function.

**References:**

**Related Use Cases:** UC 1-2

**Typical Flow Description (include precondition & postcondition):** The system will print a statement confirming a successful execution of the http request to the cloud run service and sendgrid cloud function and. Precondition: Cloud Run HTTP request: Parameter 1- filled template. Parameter 2- file name. Pulled blank template from GCS, parsed firestore data, populated template with data, Converted to string. Parameter 2- file name. Cloud Function Http request: Parameter 1: pdf, Parameter 2: file name. Received pdf from cloud run service. File name from main cloud function.

**Alternative Flow Description (include precondition & post-condition):** Error message indicating unsuccessful http request. Precondition: Incomplete parameters, Postcondition: Error message.

**Use Case Name:** GCR File Creation Status

**Use Case Number:** UC4

**Author(s):** Bilal Baloch

**Actor(s):** Employee



**Overview:** The employee will receive a print statement indicating if the Cloud Run service created a file to contain the filled tex template.

**References:**

**Related Use Cases:** UC 1-3

**Typical Flow Description (include precondition & postcondition):** The system will provide a confirmation message indicating a file has been created with the contents being the filled tex template. Precondition: UC1-3, Postcondition: File has been created on the cloud run service.

**Alternative Flow Description (include precondition & post-condition):** Error message indicating unsuccessful file creation. Precondition: Improper permission or access of file-system, Postcondition: Error message.

**Use Case Name:** GCR Receive Post Request Status

**Use Case Number:** UC5

**Author(s):** Bilal Baloch

**Actor(s):** Employee

**Overview:** The system will provide a confirmation or error message back to the cloud function indicating that it has received a post request.

**References:**

**Related Use Cases:** UC 1-4

**Typical Flow Description (include precondition & postcondition):** A confirmation message will be received to the main cloud function indicating the http post request has been received by GCR. Precondition: UC 1-3. Postcondition: Log message sent to main cloud function.

**Alternative Flow Description (include precondition & post-condition):** Error message indicating unsuccessful http request. Precondition: Improper permission or access of GCR from GCF, or permission on GCR authentication, Postcondition: Error message.

**Use Case Name:** GCR Server Running Status

**Use Case Number:** UC6

**Author(s):** Bilal Baloch

**Actor(s):** Employee

**Overview:** The system will provide a confirmation or error message back to the cloud function indicating that the express server on the GCR service is running..

**References:**

**Related Use Cases:** UC 1-5

**Typical Flow Description (include precondition & postcondition):** A confirmation message will be received to the main cloud function indicating the server is running. Precondition: UC1-5. Postcondition: Log confirmation message.

**Alternative Flow Description (include precondition & post-condition):** Error message indicating unsuccessful run of server. Precondition: Lack of installed dependency to run express app, Improper permission or access of GCR from GCF, or permission on GCR authentication, Postcondition: Error message.

**Use Case Name:** GCR Compilation Status

**Use Case Number:** UC7

**Author(s):** Bilal Baloch

**Actor(s):** Employee

**Overview:** The system will provide a confirmation or error message back to the cloud function indicating that the cloud run service has successfully compiled the .tex file into .pdf and saved to GCS..

**References:**

**Related Use Cases:** UC 1-6

**Typical Flow Description (include precondition & postcondition):** A confirmation message will be received to the main cloud function indicating the pdf is generated and saved to GCS. Precondition: UC1-6. Postcondition: .pdf generated on GCR service and saved to GCS.

**Alternative Flow Description (include precondition & post-condition):** Error message indicating unsuccessful compilation of pdf by TeXLive pdflatex command or unsuccessful upload of pdf to GCS. Precondition: UC 1-6. Postcondition: Error message. Program stopped.

**Use Case Name:** SendGrid Status

**Use Case Number:** UC8

**Author(s):** Bilal Baloch

**Actor(s):** Employee



**Overview:** The system will provide a confirmation or error message back to the cloud function indicating that the SendGrid cloud function has successfully sent an email with a pdf attachment.

**References:**

**Related Use Cases:** UC 1-7

**Typical Flow Description (include precondition & postcondition):** A confirmation message will be received to the main cloud function indicating the email has been sent. Precondition: UC 1-7. Postcondition: email sent to customer with pdf invoice attachment.

**Alternative Flow Description (include precondition & post-condition):** Error message indicating unsuccessful sending of email. Precondition: No email sent. Program stopped. incorrect/unauthenticated SEND\_GRID\_API\_KEY, not installed dependency @send-grid/mail, pdf attachment not able to be pulled.

**Use Case Name:** PDF Status

**Use Case Number:** UC9

**Author(s):** Bilal Baloch

**Actor(s):** Customer

**Overview:** The system will provide an email to the customer with a pdf attachment that is the invoice of their purchase order.

**References:**

**Related Use Cases:** UC 1-8

**Typical Flow Description (include precondition & postcondition):** A email is sent to the customer with an invoice pdf attachment. Precondition: UC1-8.

Postcondition: Customer receives an invoice pdf of their purchase.

**Alternative Flow Description (include precondition & post-condition):** No email sent.

# Supplementary Specification

Functional Requirements

# Tabular Data in E-commerce Context

In our template, we handle our data in a tabular fashion by arranging them by tables and columns for each item separated by its description, price, tax, and subtotal.

# Text Wrapping

In our template, we handle our descriptions and costs that exceed certain lengths to wrap around and make the boxes in which they are held bigger. This handles overflowing text to automatically wrap within table cells.

# Dynamic Row Height

In our template, the height of rows are dynamically adjusted.

# Supplementary Specification

Non-Functional Requirements



# Efficiency

Our pdf is generated within the time allowed for a google cloud function to execute. You can see the pdf sent in a few seconds after the function has been triggered.

# Code Quality

Our code is easy to read, well-organized and maintained with try catch blocks.

# Glossary

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**GCS:** Google Cloud Storage. Platform for storing files on Google Cloud.

**GCF:** Google Cloud Functions. Platform to execute small, scalable and serverless functions.

**GCR:** Google Cloud Run. Platform to execute containerized services.

**Firestore:** Google cloud has a platform called firestore, which is a database that consists of collections and documents within those collections. In this application, we utilize the firestore database to store our data for our customer's order.

**SendGrid:** SendGrid is an API that we use to deliver emails from a specific email address to any email address you choose. Your email can contain attachments, a description and title. You need an API key to utilize the API and install the SendGrid dependency on your package.json file within your google cloud function.