Requirements of billing-system solution

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References

Name	Requirements of billing-system solution
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Version

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1. Project background and definition

Presprint Plc is a Limbe based company specializing in the lithographic industry. Equipped with state-of-the-art equipment, it stands out as one of the few industries in this sector in Cameroon, giving it a competitive edge and enabling it to attract a diverse customer base from all ten regions of the country. Despite its many years of experience in the field, the company has not yet automated its invoicing process and customer order management.

2. Existing

Currently, Presprint invoicing system is managed manually, which exposes the company to a number of risks. These risks include margins of error in invoice calculations: calculation errors can lead to differences in invoiced amounts, which can damage the relationship of trust with customers; high processing times: the manual process is very time-consuming, which increases in voice processing times and can lead to delays in payment. Long waiting times: High waiting times can also affect customer satisfaction, as the lack of traceability of operations carried out makes it difficult to check invoices and identify any errors or fraud. It can also complicate the management of disputes with customers. And an archiving system that presents a risk of data loss: Manual invoices are often stored as unstructured paper documents, making them difficult to search and retrieve. What's more, paper documents are sensitive to physical damage, such as fire or water damage, which could result in the permanent loss of invoices and associated data.
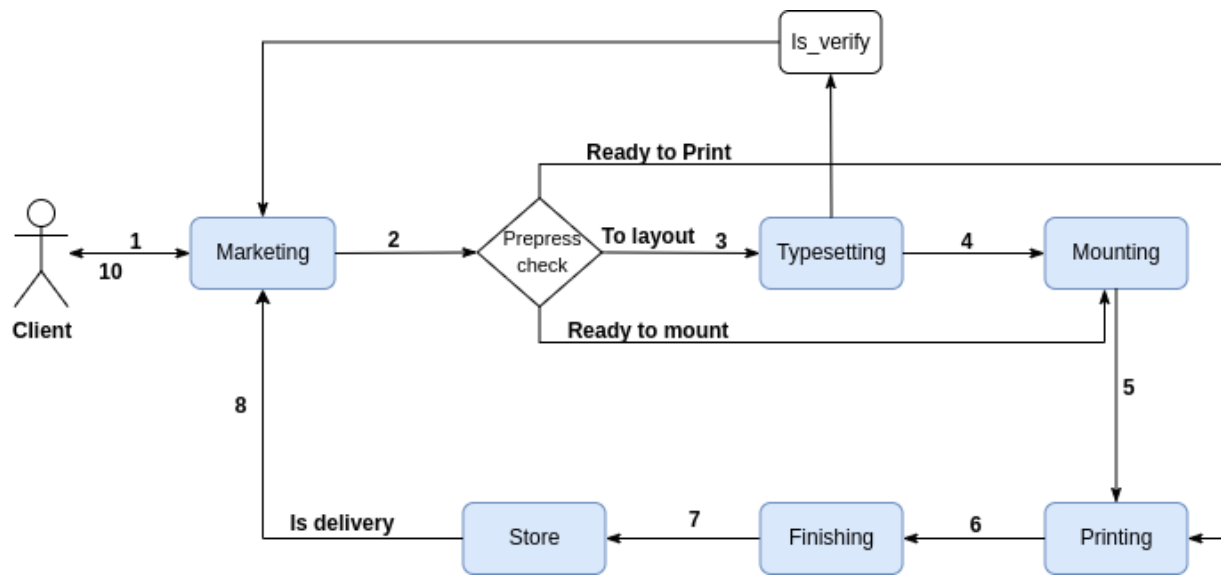
3. Requirements gathering

We have consolidated the job execution process into the following workflow.

Marketing

Input

✓ Client informations

- ○ Name, Address,
- ○ Phone number,
- ○ Town / city / country,
- ○ Email address,
- ○ Whatsapp number

✓ Job informations

- ○ Type of job (Book, Flyer, calendar, letter-head…),
- ○ Title of job,
- ○ Size of the job (open and close),
- ○ Volume (cover and content),
- ○ Type of book if it's book (perfect bound book, saddle stitched book, spiral coll book, comic book, self standing flip book, binders an binder sets),
- ○ Type of paper

- ○ Source of informations
- ○ Quality of file
- ○ Quality of image
- ○ Check combination of color : cover and content (4/0, 4/1, 4/2, 4/3, 4/4 ...)
- ○ Existing job
- ○ content of file
- ○ type of print (Scale, Black Pantone …)
- ○ Type of paper
- ○ Is_sewn,
- ○ Is_glue-bound,
- ○ Is_perforated,
- ○ Size trimmed
- ○ Is_sellotaped
- ○ Is_numbered
- ○ Creased
- ○ Number of wire-stitched
- ○ Number of folding
- ○ Is_cross
- ○ Is_para_folded
- ○ Is_laminated (number of side)
- ○ Type of paper with grammage (cover and content)
- ○ Started date
- ○ Finishing date

✓ Sample

✓ Marketing staff

- ○ Name
- ○ function
- ○ Email
- ○ phone number

Process

✓ Start the estimating process according to the materials and manpower that will be used the job, and according to each department.
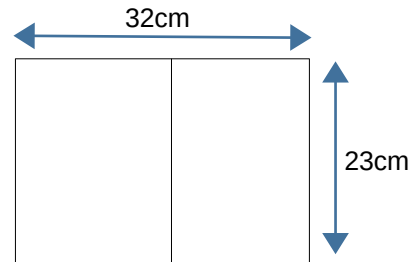
✓ Estimate delivery costs

✓ The work evolution process

✓ Delivery date

Example**:**

   Calculation rules will be based on a table of values selected according to one or more parameters, plus multiplication.
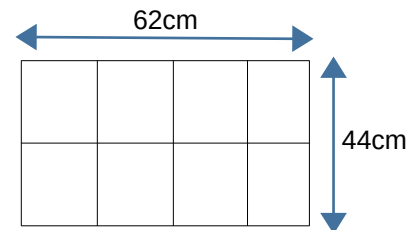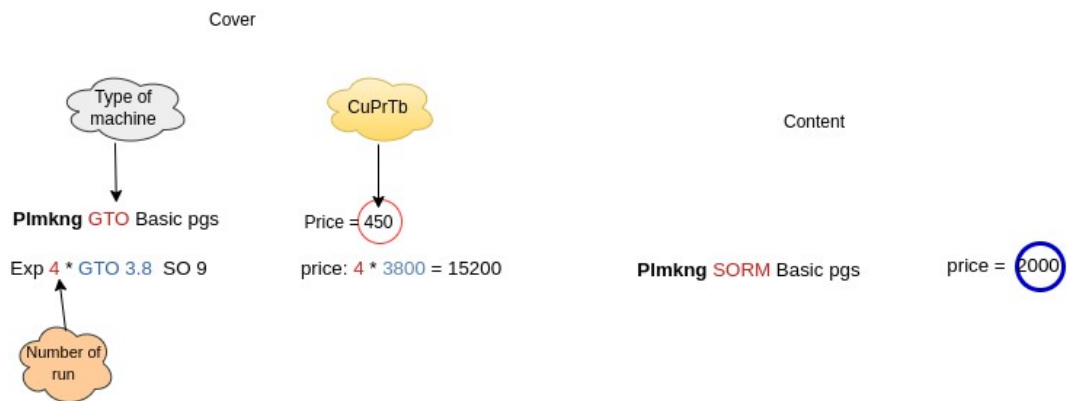
Cover (GTO)

32cm

23cm

Plts = 4
Sign / sh = 1
Run = 4

62cm

44cm

Plts = 24
Sign / sh = 12
Run = 24

Cover

Type of machine

CuPrTb

Content

Plmkng GTO Basic pgs

Price = 450

Plmkng SORM Basic pgs   price = 2000

Exp 4 * GTO 3.8 SO 9   price: 4 * 3800 = 15200

Number of run

Plm	Bas	GTO	2p	0.45	4p	1.3	8p	1.8	16p	2.5		SO/Sp	2p	0.8	4p	1.8	8p	2	16p	2.8	32p	3.5
	Fprep	GTO	2p	0.65	4p	1	8p	1.3	16p	1.6		SO/Sp	2p	0.8	4p	1.1	8p	1.5	16p	1.9	32p	2.7

Choose unit price from table = CuPrTb

Output

- ✓ Control Sheet
- ✓ Quotation (Proforma)
- ✓ Jobsheet
- ✓ Proforma Invoice
- ✓ Data supply by the customer

Typesetting

Input

- ✓ Data supply by customer

Process

- ✓ Check the job at our level
    - o Delivery date
    - o Customer address
    - o Job description
    - o Quantity of job
    - o Paper and grammage
    - o Size of job
    - o Jobsheet number
    - o Date of reception
- ✓ Apply layout
    - o Size open and close
    - o Number of pages
    - o Content color (1/1, 1/ 2,…)
    - o Check type of job
    - o Observations

- ✓ Need more picture or resources

- ✓ Layout is not done in word but can be done if the customer insists

- ✓ Mach the client soft-copy and hand-cope

- ✓ The layout is done; the jobs goes back to the client for proofreading

- ✓ If a resource is not good the client has to sign a poor quality

- ✓ The job comes back for correction if need be

- ✓ The client approves the job before transiting to the next level
    - o Staff informations (Name, Date, Function)
    - o Transmission date and time
    - o approve date by the customer

Output

- ✓ Calque

- ✓ Soft-copy

- ✓ Sample

- ✓ Observations

Constraints

- ✓ The proofreading and validations must be done by the customer

- ✓ Jobsheet must be sign by the General manager (GM)

- ✓ The job should be invoice

We have two qualities of jobs

- ✓ A Job for free (for this type of job GM must sign 3 times)

- ✓ A normal Job (for this type of job the GM must sign it 2 times)

NB: The GM signature must be the last in the Jobsheet after Production Manager signature

Mounting

Input

- ✓ Calques
- ✓ Films
- ✓ Soft-copy
- ✓ Sample
- ✓ Observations

Process

- ✔ Delivery date
- ✔ Date / time reception of Job Sheet from typesetting
- ✓ mounting of text
- ✓ Exposure of plates
- ✓ Developing the plates
  - ○ Job sheet number
  - ○ Job title
  - ○ Mounter
  - ○ Actual quantity and type of plate
  - ○ Date / time send the Job to Printing

Output

- ✓ Plates
- ✓ Sample
- ✓ Dummy
- ✓ Observations

Different ways of mounting

- ✓ number of pages per signature: we can have only 2, 4, 8, 16, 32...
- ✓ The prototype of the job
- ✓ Type of machine to print

✓ If the job is Scaled (color) or Black and white

✓ assembly type (it's wire-stitched or glue-bound)

concerning the type of machine, we have 4 type of machine

✓ GTO (print the A3) we use it to print the small jobs (quantities)

✓ SORM and Speed Master (can use the same plate A2)

✓ 102 (print A1)

the reasons can make the job delay at their level are many

(machine down, no enough materials, water…)

Printing

input

✓ Plate from Mounting or plate from the client

✓ Dummy

✓ Sample

✓ Observations

Process

✔ Date / time of reception
✔ Delivery date
✓ Identify the client

✓ Identify the description of job (type o job)

✓ Quantity to be printed

✓ The format in which the job has to be printed (4/0, 4/1, 4/2, 4/3, 4/4…)

✓ Verify content and cover

✓ Verify paper (Type, grammage, size, color)

✓ Verify the size of the paper to the plate

✓ Verify the ink (offset ink, type, ink dryank (oxidation by air, absorption))

✓ Check availability of raw materials

✓ Check the personal available for print the job

✓ Availability the machines to print the job

✓ Date / time of transmission

Output

✓ Printed job

✓ plates

✓ Sample

✓ Dummy

✓ Observations

Difficulties

✓ Observation are added to give more details or how a job has to done

✓ Coming impose to add material paper by the Production Manager

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Finishing

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input

✓ Printed Job

✓ Untrimmed paper

✓ Sample

✓ Observations

Processing

✔ Date / time of reception

✓ Identify type of job (2 wired Stitch or Glue bounded)

✓ Verify the delivery date

✓ Inspection of job

✓ Identify type of folding (hands or machine)

✓ compiling signature

✓ Make quality control

✓ Creasing of cover

✓ Laminated cover or vanish

✓ Identify the type of Stitched the job

✓ for the glue banded book we have to:

✓ Sewn and compressed

✓ Glue (cold glue or hot glue)

✓ Cover (Hand-covet and softcover

✓ Packaging and binding

✓ Printed signature

✓ Supplier (Store)

✓ Date / time of transaction

Output

✓ Job ready for delivery

✓ Trimmed paper

1. Solution

With a view to improving efficiency and reducing the risks associated with the invoicing process, Presprint opted to implement an integrated, automated invoicing system (BILLING-SYTEM). Such a system would automate billing calculations, reduce processing times, improve traceability of operations and set up a secure, reliable archiving system. Finally, this solution will enable the company's staff to process customer requests even when away from the company's premises.

2. Project objectives

This electronic BILLING-SYTEM solution will enable Presprint to centralize and efficiently manage all customer, order and production information. Thanks to this solution, the company will be able to securely collect and store customer information such as contact details, order specifications and preferences. In addition, the BILLING-SYTEM solution will enable Presprint to streamline the process of calculating production costs based on the customer's order. This will enable the company to generate an almost instantaneous, accurate and optimal quote and later to be convert to a quotation invoice if validate by the customer. This, in turn, will lead to customer satisfaction.

3. Functional specifications

The system must offer the following functionalities, which we will group according to the different departments:

Customer Relationship Management (CRM)

- ✓ A user must be able to register customer information;
- ✓ A user must be able to register a customer's predefined products.
- ✓ Interaction tracking
- ✓ **Customer service:** Manage support tickets, track issues reported by customers, manage resolution times and maintain a history of customer service interactions.

✓ **Sales management:** Track sales opportunities, sales forecasts, quotations, invoices and stages in the sales process.

✓ Improve customer satisfaction

✓ **Internal collaboration:** Facilitating communication and collaboration between different teams within the company, including sales, marketing and customer service.

Supplier Relationship Management (SRM)

✔ Smoothness of supplier-to-company or company-to-subcontractor exchanges.

✔ Improvement of the procurement process.

✔ Managing legal and financial risks.

Billing management:

✓ the user must be able to register a customer's order in the system

✓ A user must be able to generate quotation invoice known as Controlsheet (a PDF document containing all the information that the customer must carefully check in order to complete the order).

✓ User must be able to generate a proforma (An estimate)

✓ A user must be able to generate a ticket known as Jobsheet (a PDF document containing all the information required to complete a customer's order).

✓ User must be able to generate the invoice

Production Management

✓ The user must be able to monitor the progress of a customer's order in real time.

Accounting management

✓ Analyzing the Rate of Return

✓ Helping Understand Performance Variances

Statistics and reports:

✓ View daily, weekly, monthly and annual statistics on actions carried out, segmented by department.

Users management:

✓ Account creation and modification of profile information by the user

✓ View transaction history

✓ Secure login and logout

Account management:

    ✓ Ability to suspend an account if necessary

Configuring access levels:

    ✓ The system must enable access levels to be configured to guarantee secure information management.

Dashboard management

    ✓ The system must allow the dashboard to be configured according to the type of player.

These features are designed to provide a complete solution for the efficient management of printing processes, from job creation to statistics tracking and print management.

1. Key stakeholders

✓ Administrative Management

    ✓ IT Department

    ✓ Printing Press Department;

    ✓ Marketing Department;

    ✓ Accounting Department

    ✓ Production department;

    ✓ Head of Fabric Printing Department;

    ✓ Head of Screen Printing Department

1. Deliverable

Within the scope of these specifications, we have identified the main deliverables that will accompany the project

✓ **Specifications:** these describe in detail the needs, objectives and constraints of the project. It will include an analysis of the various components and functionalities required.

✓ **Analysis book:** This document will include an in-depth analysis of the various components and functionalities required.

✓ **The design brief:** This document will detail the overall architecture of the project, including data structure, interactions between the various modules and choice of technologies.

✓ **Source code and technical documentation:** The application's source files and associated technical documentation must be supplied.

✓ **Deployed version of the application:** Once development is complete, it is important to deliver a deployed version of the application, ready for use by the company.

✓ **Training and user documentation:** To facilitate adoption and use of the application by the company's users.

The use of these workbooks enables deliverable to be structured and documented in a clear and organized way.

1. Project phases

This project will be carried out in the following stages:

✓ **Initialization phase:** In this phase, we define the project's objectives, needs and constraints, as well as the stakeholders involved.

✓ **Analysis phase:** In this phase, we'll carry out an in-depth study of business processes, user needs and the application's functional and technical requirements.

✓ **Design phase:** In this phase, we'll develop the software architecture, design the user interface, define the databases and specify the application's key functionalities.

✓ **Development phase:** In this phase, we transform specifications and designs into source code.

✓ **Testing and validation phase:** During this stage, we'll check that the application conforms to the specified requirements, carry out functional and non-functional tests, and perform integration tests to guarantee the software's stability and quality.

✓ **Deployment phase:** We install the application in the production environment

✓ **Maintenance and support phase:** During this phase, we'll provide ongoing application maintenance, bug fixes, updates and technical support to ensure the application runs smoothly and meets the company's changing needs.

1. Non-functional specification

As functional specifications of our system we have identified:

System availability: it must:

✓ Be highly available;

✓ The system must be compatible with computers, Android phones and tablets.

Programming languages:

✓ Java (8.0.27);

✓ JavaScript

Database management system (DBMS)

- ✓ We'll be using the Structured Query Language (MySQL) database to store and manage the data for this project.

Working method:

- ✓ During the realization of this project, we will adopt the SCRUM method, an agile project management method. We will follow a 3-week sprint frequency.

Architecture:

- ✓ **For** the realization of this project, we will opt for the MVC (Model-View-Controller) architecture, which will be implemented using the Spring Boot framework running under a 2.7.17 kernel.