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REFERENCE: CIP PICKING

TO THE ATENTION..:

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PICKING WAREHOUSES

A computer solution based on three modules is proposed to solve:

1. Picking of products in a warehouse with shelves
2. Control of prepared orders
3. Control of shelf stocks

1. PRODUCT PICKING

This module consists in collecting the products requested by the clients going through the shelves of the warehouse in order of the locations of the articles. Orders are obtained from the import of a generated file from the external ERP.

The generated file contains the following information:

- ☒ CODE
- ☐ NAME
- ☐ LOCATION
- ☐ AMOUNT
- ☐ STOCK
- ☐ SUPPLIER WAREHOUSE
- ☐ EAN
- ☐ ORDER STATUS
- ☐ ID ORDER
- ☐ DATE OF PURCHASE
- ☐ TYPE OF ORDER

In addition, orders printed on paper will be delivered with a code of bars that identify them uniquely.

Expected processes:

1. **Import of the file** with the information of the orders and existence.
2. **Preparation picking** : Create a numbered preparation form.
Choose the 'n' orders that will be prepared by reading the code of bars of each order sheet and assigning them to the form preparation. Leave the printed order pinched in each drawer to identify the drawers. You can add some description to each chosen order for your best identification, for example: color of drawer, drawer location, etc. Each picking preparation will take a unique code, an operator and a start and end date that will serve to Evaluate the total time of preparation of the person who performs it.

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3. Start picking :

- a) The screen indicates the location to go. The screen appears location, product, order / drawer, remaining units.

The screen contains the following information:

Location : zzzzzz

Product : xxxx **Name :** cccccc

Order : xyza Blue drawer

Remaining : 5 out of 7

Read code: _____

Pause button | Undo button | Next button | Sin button
Stock

The "Pause" button is used to park the form preparation and to be able to continue it later.

The "Undo" button removes the last reading.

The "Next" button leaves this pick pending and goes to following.

The "No Stock" button marks the product as a stock break.

- b) Each EAN bar code of the product is scanned and scanned. In
If the search is not located, the search is made on the product. The item is placed in the indicated order / drawer. In screen is subtracted from the remaining units. If the product read is not corresponds the system issues an alarm.
 - c) When it reaches 0 (full service) it is changed to the next order from the same location, if there is one. If there is no jump to point a).
 - d) The process is repeated until all the requests of the preparation collected or press "pause".
4. **Pause picking** : Halfway through preparation you can pause the process of collection for whatever reason. Turn to point 2 to start another preparation or re-select it to continue.
5. **Abort picking** : An order is selected and deleted from the form preparation, as if it had never been started. The products collected must be returned to their original locations. He
The rest of the orders of the form are not affected.
6. **End form preparation** : The **preparation** is marked as completed because all your orders are completed although there may be

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faults due to stock breaks.

7. **List of faults** : All products that have been marked are printed as stock breakage of a preparation part.
8. **Delete old orders** : Orders for a period of system.

2. CONTROL OF ORDERS PREPARED

This module consists of verifying the correct preparation of each order reading the codes of all the products that compose it.

The procedure is the next:

1. The bar code of the printed order of the drawer is read so that the system identifies the order to be checked.
2. The bar codes of all the products in the drawer are read. Yes
Some product does not belong to the order or exceeds the order requested system issues a warning.
3. At the end of the system, indicate the incidents that have occurred:
 - a) Lines not completed
 - b) Lines exceeded

3. CONTROL OF STOCK EXISTENCES

This module consists of reading the codes of the products that are in the shelves and see the differences of existence with respect to the system. For generalize the process a file is imported with the products to be controlled. Is possible to access through a connection to the external ERP system facilitating the connection data and the description of the files to consult.

The procedure is the next:

1. A file with the list of products to be checked is imported. She is ready new replaces the previous one. The list includes:
 - PRODUCT CODE
 - FIRST NAME
 - LOCATION
 - STOCK
 - EAN
2. The first location to be visited appears on the screen, the product, the units in stock and units read.
3. The operator scans all the products in the location until click on end and the system records the possible differences. HE shows the following location and the process is repeated.
4. At the end of the check the system prints a ratio of incidents indicating the location, the product, the theoretical existence,

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VARIOUS PROCESSES

1. **Maintenance of operators** : High, low, modifications and consultations of a table of operators with the code and the name.
2. **Maintenance of orders** : High, low, modifications and consultations of an order table. The minimum information it contains is:
 - a) order number
 - b) ERP pick list
 - c) order type
 - d) purchase date
 - e) preparation form code
 - f) description drawer
3. **Maintenance of order lines** : High, low, modifications and queries of a table of ordered lines. The minimum information that contains is:
 - a) order number
 - b) unique code of the order line.
 - c) ean
 - d) location
 - e) warehouse supplier
 - f) product code
 - g) product name
 - h) quantity
 - i) stock
 - j) state
 - k) quantity served
 - l) completed yes / no
 - m) Break Stock
4. **Maintenance form preparation picking** : High, low, Modifications and queries of a pick preparation table. The

The minimum information it contains is:

a) preparation code.

b) Operator

c) High date, start date, end date.

d) Status: high, started, finished, paused.

5. **Lines of the preparation list** : The following are selected and marked: orders directly from the order file.

6. **Main menu** : Process selector on the screen

7. **Maintenance users** : High, low, modifications and queries of a table of system users

8. **Access to the system** : User login screen.

9. **PDA Menu** : Screen selector of the processes

10. **PDA Access** : User login screen.

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SUMMARY PROCESSES

Picking Products

1. Import file orders
2. Picking preparation
3. Process picking readings codes. PDA
4. Pause preparation. PDA
5. Abort picking: remove order from picking
6. End picking PDA
7. List faults
8. Remove period orders

Control Orders

1. Select order
2. Readings with checking products
3. Incident list

Control Stock

1. Import file with products to control
2. Successive readings in each PDA location
3. Incident list

Various Processes

1. Maintenance operators
2. Maintenance orders
3. Maintenance ordered lines
4. Maintenance Picking preparation form
5. Maintenance picking lines
6. Main menu
7. Maintenance system users
8. Login / System access
9. PDA menu
10. Login / PDA Access

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PROCESS ANALYSIS

Main menu

The menu contains the options accessible only to registered users:

1. Picking Products
 1. Import File
 2. Prepare Picking
 3. Start Picking
 4. Abort Picking
 5. Finish Picking
2. Controls
 1. Control Orders Served
 2. Control Stocks
 1. Import stock file
 2. Start control
 3. Export result
3. Data
 1. Operators (Crud sga_operarios)
 2. Orders (Crud sga_jpedidos with lines sga_jpedidoslin)
 3. Picking (Crud from sga_picking with sga_pickingped lines with lines sga_pickinglin)
 4. Remove Orders
4. System. Accessible options for administrators
 1. Users
 2. Users link

Picking Products

Import File

A form is displayed to select a file on the computer to import it, an import button, a grid to display the orders imported. Once selected and after confirming it, the file of text or excel. A record is inserted in the table sga_jpedidos for each IDPEDIDO different from the following form:

- order: pick up and increase field of sga_counter.pedidoscli
- date, date: date of the day
- tipoped = Imported
- id = the one in the import file
- fechaped = purchase date of the file
- usernum = the registered user who imports
- feactu = date of the moment

A record is inserted for each line of the import file in the table sga_jpedidoslin with the following information:

- order = order of sga_jpedidos
- line = counter starting with 1 and increasing in each record inserted from the same order.
- coded = concatenation of requested fields + "-" + line
- article = file code
- name = name of the file
- location = location of the file
- quantity = amount of the file
- existence = file stock
- almapro = file provider
- idpedido = request of the file
- fcompra = purchase date of the file
- order type = order type of the file
- codbars = ean of the file. If there is no put the article.

At the end of the import process, orders are displayed on the grid Imported:

order, order, date, count (lines in sga_jpedidoslin of the same order).

Prepare picking

A header / lines form is displayed. In the header fields: picking, date, operator. In the lines a grid to create, edit and delete records in sga_pickingped.

You press a "Create pick" button that inserts a record into sga_picking with the following data:

- picking = pick and increase field of sga_contador.picking
- date = the date of the day
- operator = the person designated to carry out the picking

Once the header is created, a "High Order" button is activated that shows a field to enter an order number, a description and a button to select an order from a list of orders (sga_jpedidos) in state High or Partial, in order of priority, and date of service. It is entered and verified the order number, and the description for that order and insert a registration in sga_pickingped with the following information:

- picking = sga_picking.picking
- order = the order of the form
- description = the description of the form

Next, all the lines of the order (sga_jpedidoslin) are inserted in Been pending in the table sga_pickinglin in the following way:

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- picking = sga_picking.picking
- coding = sga_jpedidoslin.codpedido
- serve = sga_jpedidoslin.cantidad - sga_jpedidoslin.servido

At the end the form with the sga_picking record created and a grid with your associated orders in sga_pickingped. The grid contains a Control column to edit or delete the selected record. If it is deleted The order is also removed from the sga_pickinglin lines of the order.

Start Picking

A form with a "Operator" field, a button is displayed "Select" and an empty grid. When entering an operator and press "select" the sga_picking records in the High or Partial state are displayed in the grid and with the "operator" field equal to the form field. The columns will be shown: picking, status, date, observations and a column to select a unique picking The form has a "Start" button and a "Cancel" button. He "Cancel" button returns to the main menu.

The "Start" button starts the picking process in the following way:

The field is updated:

sga_picking.finicio = current instant

The sga_pickinglin lines linked to sga_jpedidoslin are ordered by the field "code" in order of location and coded in a list.

The list records are presented one by one in a form that contains:

- sga_jpedidoslin.location: to indicate where the operator has to go
- sga_jpedidoslin.article
- sga_jpedidoslin.name
- sga_jpedidoslin.dispedido
- sga_pickingped.description

- what is served = sum of (sga_pickinglinlec.servido) linked by picking, coded
- the total that needs to be served = sga_pickinglin.servir
- an entry field with the code to be read.
- Field quantity = 1
- Buttons: Pause, Undo, Next, SinStock

The entered code is read. If it matches the barcode or the article a record is inserted in sga_pickinglinlec with the information:

- picking = sga_pickinglin.picking
- coding = sga_pickinglin.codpedido
- date = the instant of the recording
- served = the form quantity field
- operator = the one identified in the form

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- barcodes = the input field of the code to be read.

After inserting, the quantity = 1 field is set and the following code is expected.

If it does not match, a warning will appear on the screen and the same reading will continue.

They continue reading codes until the whole amount is served.

Then it is updated:

- sga_pickinglin.estado = Servido
- sga_pickinglin.operario = the one in the form
- sga_pickinglin.ffin = max (sga_pickinglinlec.date).

Then the next record in the list is read and started again.

The process can be interrupted by pressing a button.

The operation of the buttons is:

- Pause: the picking is interrupted and the main menu is returned.
- Undo: the last reading is deleted by deleting the last record of sga_pickinglinlec, the form is updated and remains pending read a code.
- Next: skips to the next record with the list in status sga_pikinglin.es pending

- SinStock: Mark sga_pickinglin.estado = R and jump to the next record of the list.

If you have reached the end of the list you start again from the beginning as long as there are pending or partial records.

If there are no more pending records in the list, it ends with a notice in screen and it is marked:

- sga_picking.estado = served
- sga_picking.ffinal = max (sga_pickinlinlec.date)
- sga_picking.lineas = count (sga_pickinglin)
- sga_picking.units = sum (sga_pickinglec.servido)

It returns to the main menu.

Abort picking

A form with a field to enter a pick and a button is displayed of "Select". Pressing the button verifies that the registration exists and show sga_pickingped orders. Then one of the existing orders in sga_pickingped. After confirming it:

- is removed from sga_pickingped
- all lines of sga_pickinglin and sga_pickinglec are deleted that order binding by code of sga_jpedidoslin.
- Is updated: sga_jpedidos.estado = B-aborted

End picking preparation

An sga_picking record is selected and after confirming it, it is updated:

- sga_picking.estado = Served

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- sga_picking.ffinal = max (sga_pickinglec.date)
- sga_picking.lineas = count (sga_pickinglin)
- sga_picking.units = sum (sga_pickinglec.servido)

With all orders of sga_pickingped linking to sga_jpedidos:

- sga_jpedidos.estado = S-Servido

With all the records of sga_pickinglin linking to sga_jpedidoslin:

- sga_jpedidoslin.estado = sga_pickinglin.estado
- sga_jpedidoslin.servido = sum (sga_pickinglec.servido)

Missing list

In a form "Date from" and "Date until" is entered.

It shows a grid with the sga_jpedidos with a date between that period and all your lines of sga_jpedidoslin whose status is not served:

- sga_jpedidolin.pedido,
- sga_jpedidolin.article,
- sga_jpedidolin.name,
- (sga_jpedidolin.cantidad - sga_jpedidolin.servido) as Resto
- sga_jpedidolin.estado,
- sga_jpedidolin.dispired,
- sga_jpedidolin.almapro

Controls

Control Orders

In a form, an order field and a "select" button are displayed.

When selecting it is verified that it exists in sga_jpedidos and the records of the sga_controlpedlec table with the order equal to the selected one.

An entry field is displayed to read barcodes or articles, and a field for the quantity that is always defaulted 1. In each reading it is

Insert a record in sga_controlpedlec:

- order = selected order
- date = the current time
- served = the amount of the amount field
- codbars = the content of the input field

Once the record is recorded, the quantity is set again to 1 and the next code.

Form buttons:

- Finalize
- Undo
- Incidents

The end button returns to the main menu.

eleven

The undo button removes the last record of sga_controlpedlec.

The incident button must report all discrepancies in quantities ordered and served, and the items served not ordered. Produce a calculation to select all the lines of the order that the quantity does not match serve with the sum of the records sga_controlpedlec (served) whose Codbars is the same. All the codbars that will be listed in another grid will also be They exist in sga_controlpedlec and they are not in sga_jpedidoslin.

Control Stock

Import File

A field to import a file and a button is shown in a form "To import". When importing the file, each record is entered in the table sga_controlexis

Start Control

A form with the data of sga_controlexis is shown:

- Location
- Article
- first name
- quantity, by default always 1
- bar codes
- partial = sum (sga_controlexislec.cantity) of the same bar codes
- existence

The form has the buttons:

- Start
- undo
- following
- Finalize

The "Start" button sorts all records of sga_controlexis by order of location, article and presents them in the form.

The operator reads the product codes of the location. For each reading

Insert a record in sga_controlexislec:

- article = the form field
- date = the current time
- quantity = the form field
- codbars = the form

When you insert the record, the quantity = 1 field in the form is modified and again ask for the following code.

Undo button: The last record of sga_controlexislec is deleted.

Next button: Jumps to the next record in the list.

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Finish button: Go to the general menu.

Export Result

The result is shown in a grid with the differences detected in screen:

- Article
- first name
- Location
- theoretical existence
- real existence = sum (sga_controlexislec.cantidad) of the article.
- Difference = theoretical - real

The form has a button to export to excel the same as it appears in screen.

Data**Maintenance Operators**

High, low, modifications and consultations of sga_operarios.

Maintenance Orders

High, low, modifications and queries of sga_jpedidos and its lines sga_jpedidoslin. If records are deleted, the corresponding related tables sga_jpedidoslin, sga_pickinglin, sga_pickinglec, sga_pickingped, sga_controlpedlec.

Picking maintenance

High, low, modifications and queries of sga_picking, sga_pinckinglin and sga_pickingped ..

Remove period orders

In a form "Date from" and "Date until" is entered. After confirm it all the records of sga_jpedidos with the date are deleted between that period. All related tables are also deleted:
sga_jpedidoslin, sga_pickinglin, sga_pickinglec, sga_pickingped, sga_controlpedlec