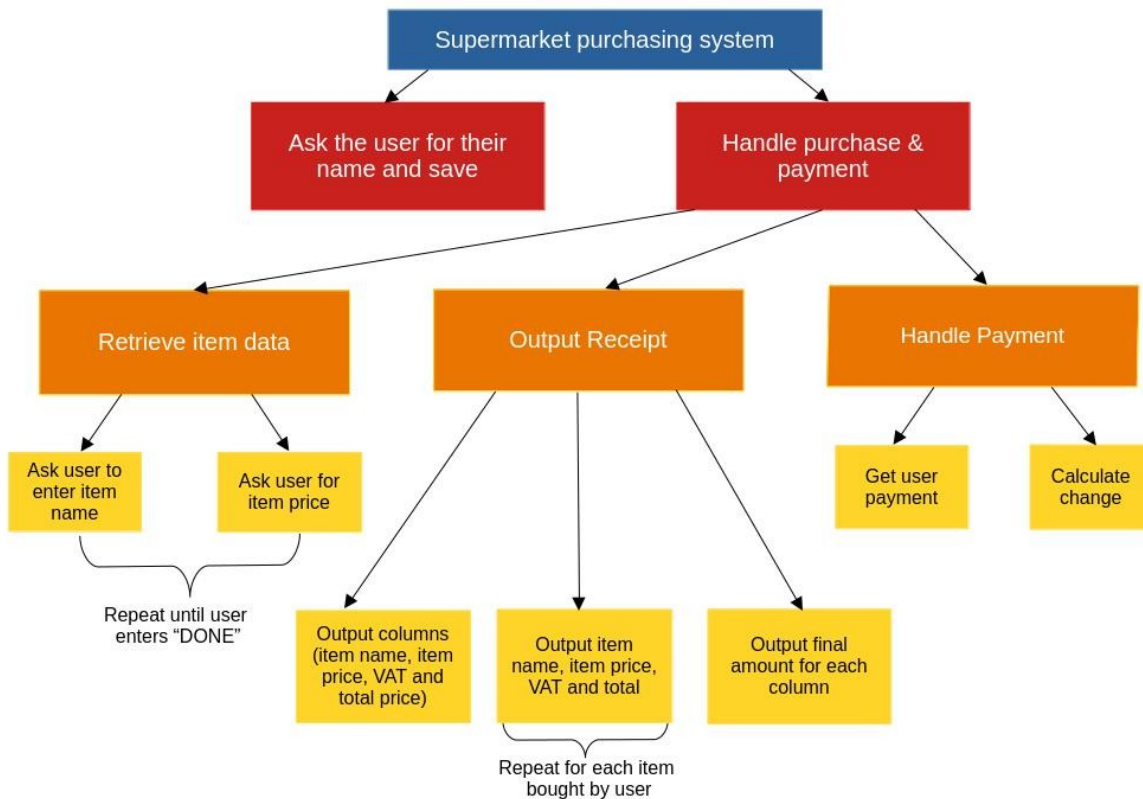


SEN-101 Algorithmic Thinking & Problem Solving  
Lab 3: Practice Assignment  
Using Successive Refinement

Name: (Win) Thanawin Pattanaphol

Student ID: 01324096

## Successive Refinement Diagram



# Pseudocode

## Retrieve Item data

```
get item_name
Repeat while item name is not "DONE"
    get item_price
    save item_name and item_price in item_set
    get next item_name
Endrepeat
```

## Output Receipt

```
print column headers ["Name", "Item Price", "VAT", "Total"]
set total_items_price = 0;
set total_vat = 0;
set final_total = 0;
foreach item in item_set
    set vat = 0;
    if item_price >= 100
        set vat = item_name * 0.07
    endif

    print item_name, item_price, vat, (item_name + vat)
    set total_items_price = total_items_price + item_price
    set total_vat = total_vat + vat
    set final_total = final_total + item_price + vat
endfor
print "Total", total_items_price, total_vat, final_total
```

## Handle Payment

```
get user_payment
repeatwhile user_payment < amount_owed
    print error message "Payment not enough."
    get user_payment
endrepeat
if user_payment > amount_owed
    do calculate change
endif
```

## Calculate Change

```
set denominations = set {500, 100, 50, 20, 10, 5, 2, 1}
set change = user_payment - amount_owed
repeatwhile change_owed > 0
    foreach denom in currency_set
        repeat while change - denom > 0
            print "User gets <denom> baht banknote / coin"
            change = change - denom
        endrepeat
    endfor
endrepeat
```

## Top Level Algorithm

Ask user for name and save  
Do **Retrieve item data** (page 2)  
Do **Output receipt** (page 2)  
Do **Handle Payment** (page 2)