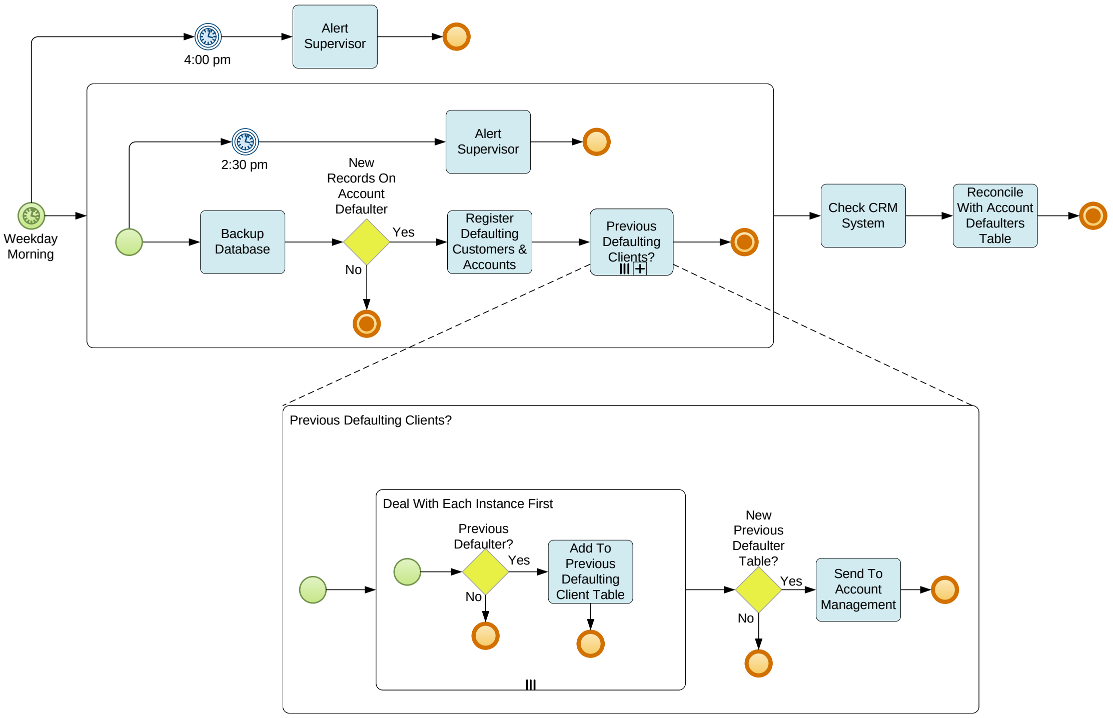
Exercise 1

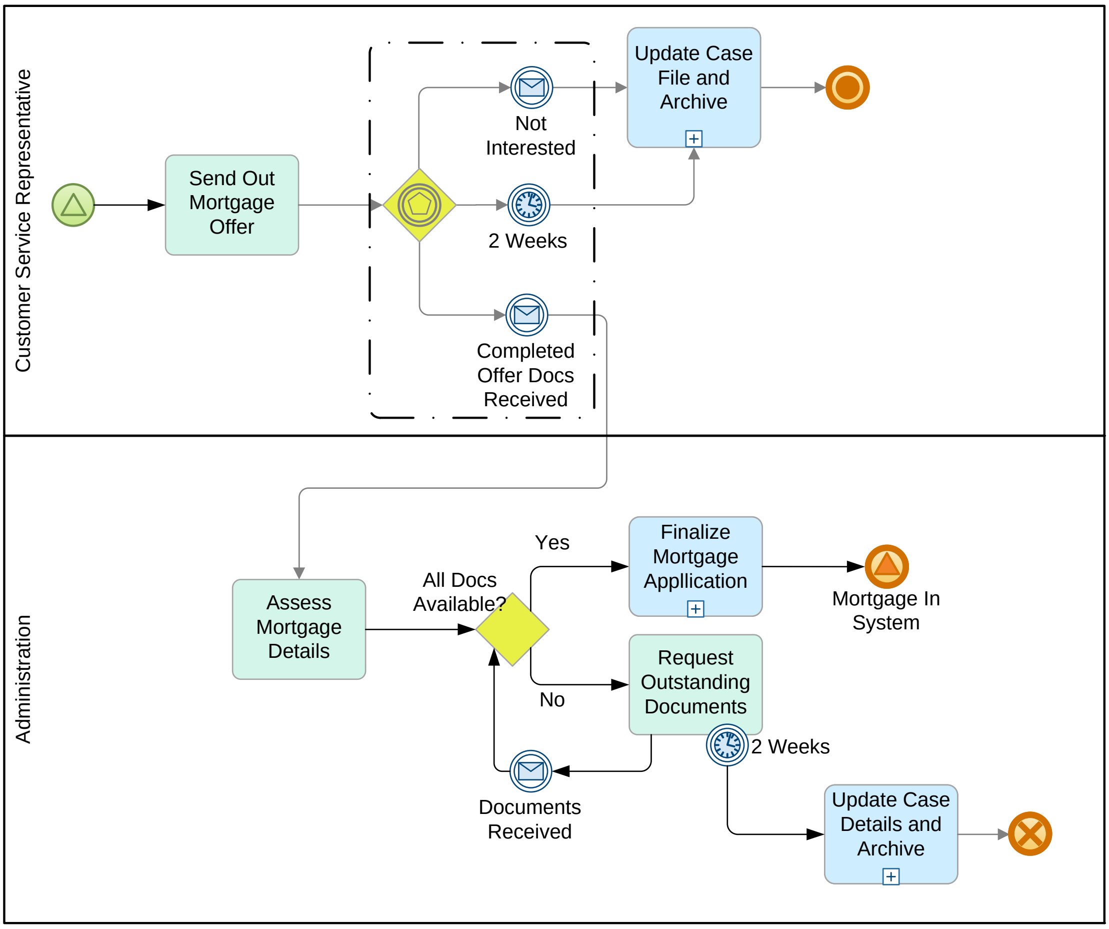
Every weekday morning, the database is backed up and then it is checked to see whether the “Account Defaulter” table has new records. If no new records are found, then the process should check the CRM system to see whether new returns have been filed. If new returns exist, then register all defaulting accounts and customers. If the defaulting client codes have not been previously advised, produce another table of defaulting accounts and send to account management. All of this must be completed by 2:30 pm, if it is not, then an alert should be sent to the supervisor. Once the new defaulting account report has been completed, check the CRM system to see whether new returns have been filed. If new returns have been filed, reconcile with the existing account defaulters table. This must be completed by 4:00 pm otherwise a supervisor should be sent a message.


4:00 pm
Alert Supervisor
2:30 pm
Alert Supervisor
Weekday Morning
Backup Database
New Records On Account Defaulter
Yes
No
Register Defaulting Customers & Accounts
Previous Defaulting Clients?
Check CRM System
Reconcile With Account Defaulters Table
Previous Defaulting Clients?
Deal With Each Instance First
Previous Defaulter?
Yes
No
Add To Previous Defaulting Client Table
New Previous Defaulter Table?
Yes
No
Send To Account Management

This answer recognizes that there is a difference between dealing with the batch activity (backing up the database) and dealing with the each instance asking whether they have been previous defaulters. It also uses a series of parallel Timer Intermediate Events to send the alert, in combination with the Terminate End Events.

Exercise 2

The Customer Service Representative sends a Mortgage offer to the customer and waits for a reply. If the customer calls or writes back declining the mortgage, the case details are updated and the work is then archived prior to cancellation. If the customer sends back the completed offer documents and attaches all prerequisite documents then the case is moved to administration for completion. If all pre-requisite documents are not provided a message is generated to the customer requesting outstanding documents. If no answer is received after 2 weeks, the case details are updated prior to archive and cancellation.

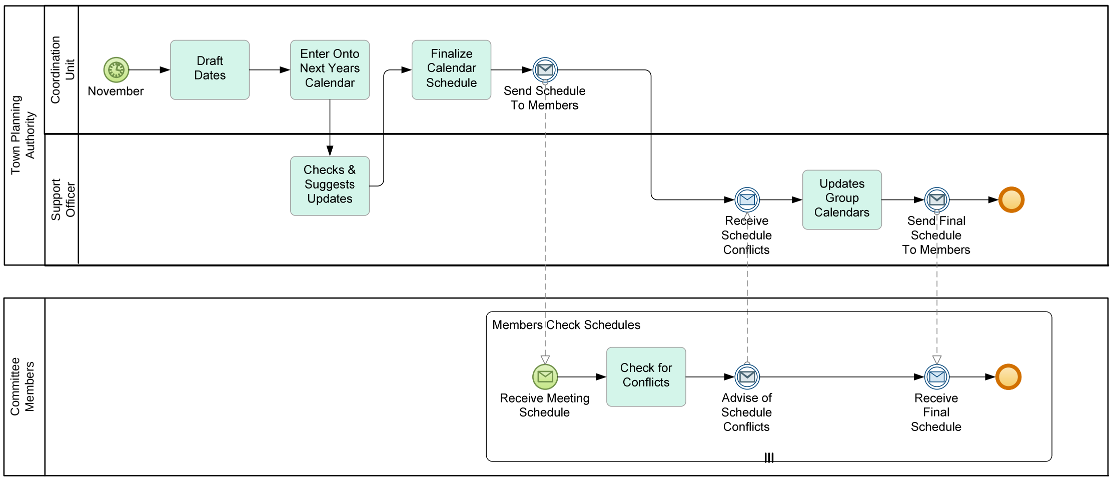

Customer Service Representative
Administration
Send Out Mortgage Offer
Not Interested
2 Weeks
Completed Offer Docs Received
Update Case File and Archive
Assess Mortgage Details
All Docs Available?
Yes
No
Finalize Mortgage Appllication
Mortgage In System
Request Outstanding Documents
2 Weeks
Documents Received
Update Case Details and Archive

A straightforward Event-Based Gateway is at the core of this solution.

Exercise 3

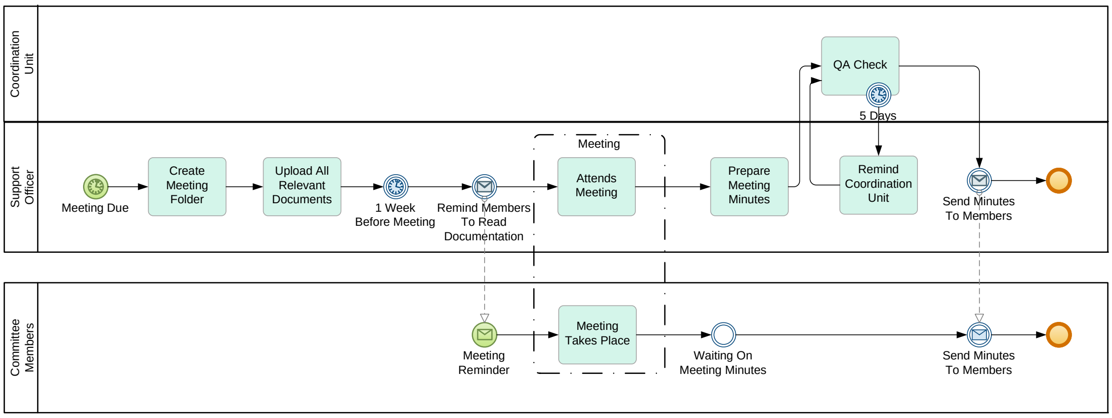
In November of each year, the Coordination Unit at the Town Planning Authority drafts a schedule of meetings for the next calendar year and adds draft dates to all calendars. The Support Officer then checks the dates and suggests modifications. The Coordination Unit then rechecks all dates and looks for potential conflicts. The final schedule of meeting dates is sent to all the independent Committee Members by email, who then check their diaries and advise the Coordination Unit of any conflicts. Once the dates are finalized (by the Coordination Unit), the Support Officer updates all group calendars and creates meeting folders for each meeting and ensures all appropriate documents are uploaded to system. Committee Members are advised a week before each meeting to read all related documents. The Committee Members hold their meeting, and the Support Office then produces minutes including any Action Points for each Committee Member. Within 5 working days, the Coordination Unit must conduct a QA check on the minutes, which are then sent to all Committee Members. The Support Officer then updates all departmental records.

> *If the modeler tries to build this as one process it is inordinately difficult, yet if two processes are used, the answer is obvious and relatively simple. Notice the use of Message Flow to communicate between Pools (as the Committee Members work outside of the Town Planning Authority).*



Part I – Exercise 3

> *Notice that the Meeting is indicated with a Group across the two Pools. We have also used a None Intermediate Event to represent the Committee Members waiting for the Meeting Minutes. Note that this Intermediate Event will not actually wait. It will immediately trigger (pass through) and go to the Message Event, which will do the actual waiting.*



Part II (Exercise 3)

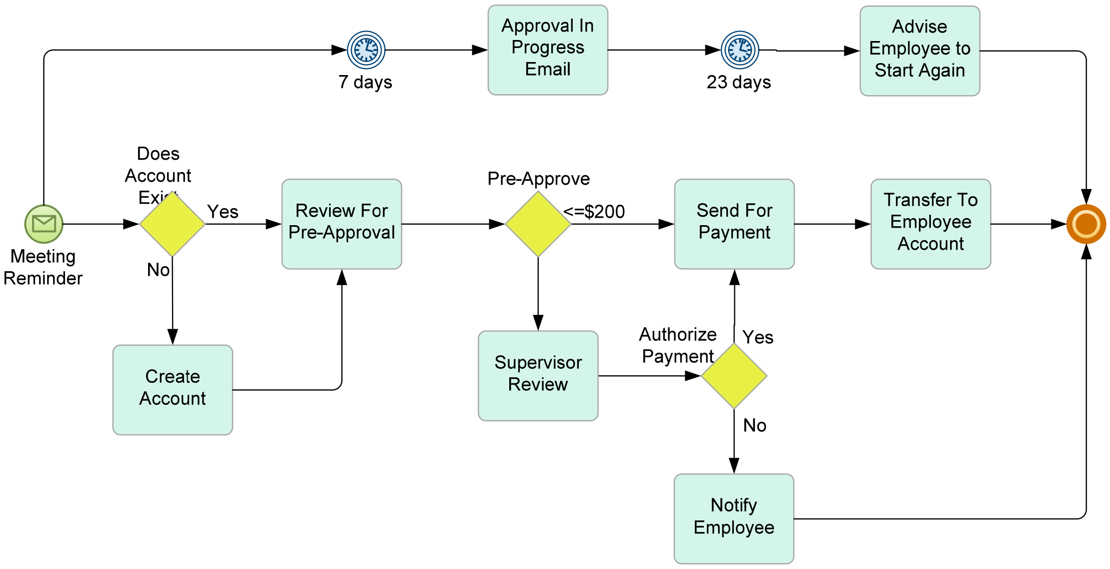
Exercise 4

After the Expense Report is received, a new account must be created if the employee does not already have one. The report is then reviewed for automatic approval. Amounts under $200 are automatically approved, whereas amounts equal to or over $200 require approval of the supervisor.

In case of rejection, the employee must receive a rejection notice by email. The reimbursement goes to the employee's direct deposit bank account. If the request is not completed in 7 days, then the employee must receive an "approval in progress" email

If the request is not finished within 30 days, then the process is stopped and the employee receives an email cancellation notice and must re-submit the expense report.

> *While it is possible to show the Lanes and create an automated system support environment, this answer sticks to the core process model. It uses the parallel Timer Intermediate Event to create a race condition with the main process, which ends with a Terminate End Event to win the race.*



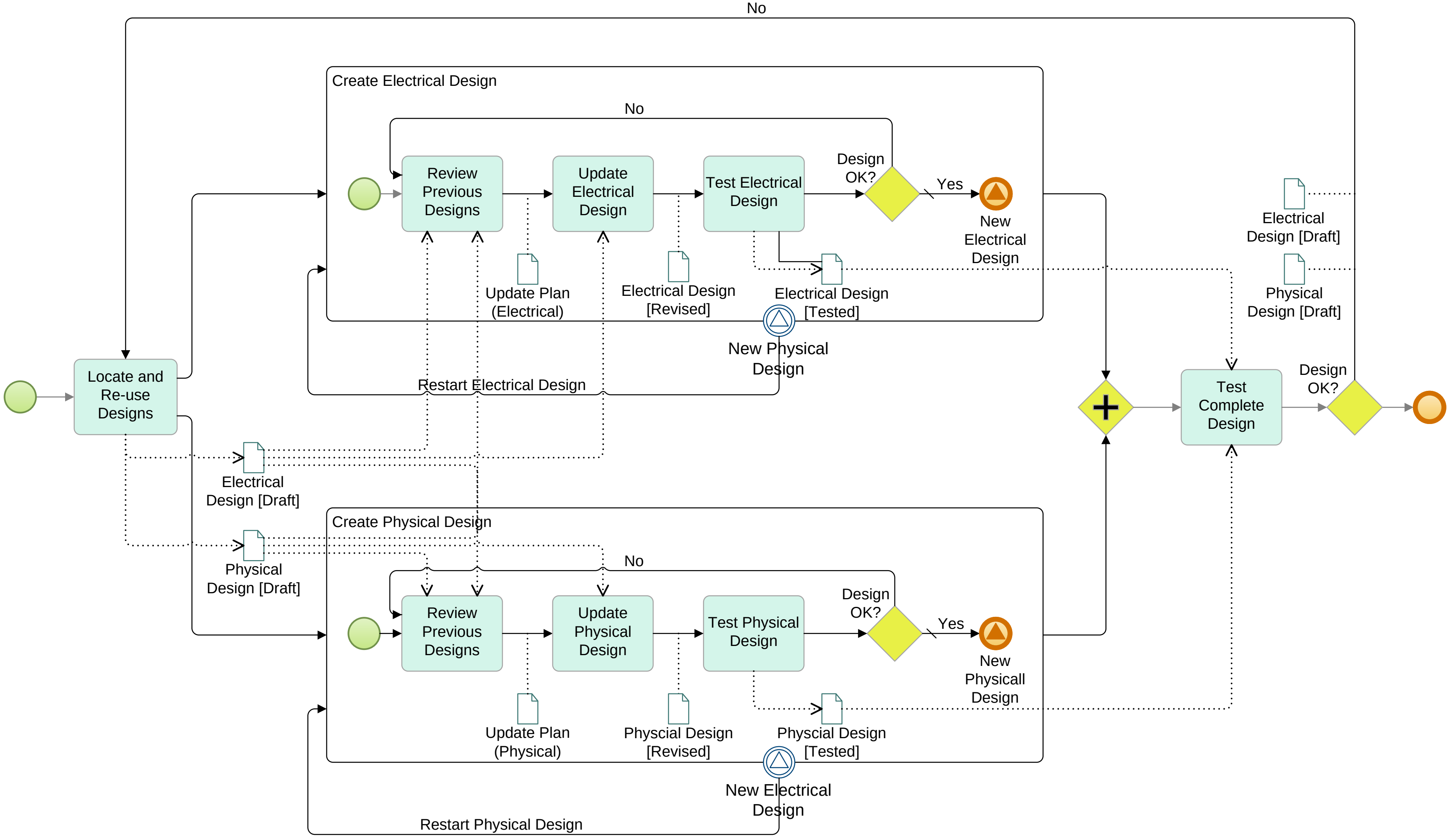
Exercise 5

After the Process starts, a Task is performed to locate and distribute any relevant existing designs, both electrical and physical. Next, the design of the electrical and physical systems starts in parallel. Any existing or previous Electrical and Physical Designs are inputs to both Activities. Development of either design is interrupted by a successful update of the other design. If interrupted, then all current work is stopped and that design must restart.

In each department (Electrical Design and Physical Design), any existing designs are reviewed, resulting in an Update Plan for their respective designs (i.e. one in Electrical and another in Physical). Using the Update Plan and the existing Draft of the Electrical/Physical Design, a revised design is created. Once completed the revised design is tested. If the design fails the test, then it is sent back to the first Activity (in the department) to review and create a new Update Plan. If the design passes the test, then it tells the other department that they need to restart their work.

When both of the designs have been revised, they are combined and tested. If the combined design fails the test, then they are both sent back to the beginning to initiate another design cycle. If the designs pass the test, then they are deemed complete and are then sent to the manufacturing Process [a separate Process].

> *Although it sounds like the above example will never complete, in fact the first Sub-Process to successfully complete will firs the Signal End Event, before progressing to the Merging Parallel Gateway. There it will wait for the other Sub-Process to complete. Meanwhile, the other Sub-Process will restart before moving through to its own Signal End Event. Although the Signal will fire, the other Sub-Process has already completed and is not in a position to "catch" the Signal. When both Sub-Processes have completed successfully, the Parent Process moves to test the combined design before either sending the work back to restart, or end successfully. The link to the separate Manufacturing Process is not shown – it would probably be implemented via a Signal End Event or potentially a Message End Event.*


No
Create Electrical Design
No
Review Previous Designs
Update Electrical Design
Test Electrical Design
Design OK?
Yes
New Electrical Design
Update Plan (Electrical)
Electrical Design [Revised]
Electrical Design [Tested]
New Physical Design
Restart Electrical Design
Electrical Design [Draft]
Physical Design [Draft]
Locate and Re-use Designs
Electrical Design [Draft]
Physical Design [Draft]
Test Complete Design
Design OK?
Create Physical Design
No
Review Previous Designs
Update Physical Design
Test Physical Design
Design OK?
Yes
New Physicall Design
Update Plan (Physical)
Physcial Design [Revised]
Physcial Design [Tested]
New Electrical Design
Restart Physical Design