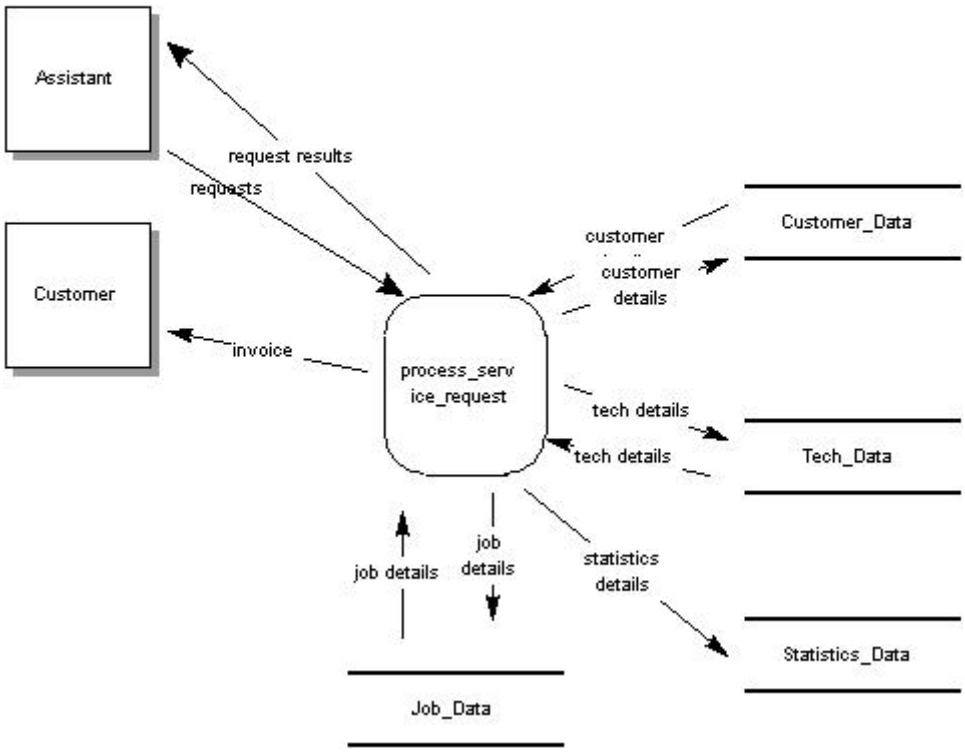
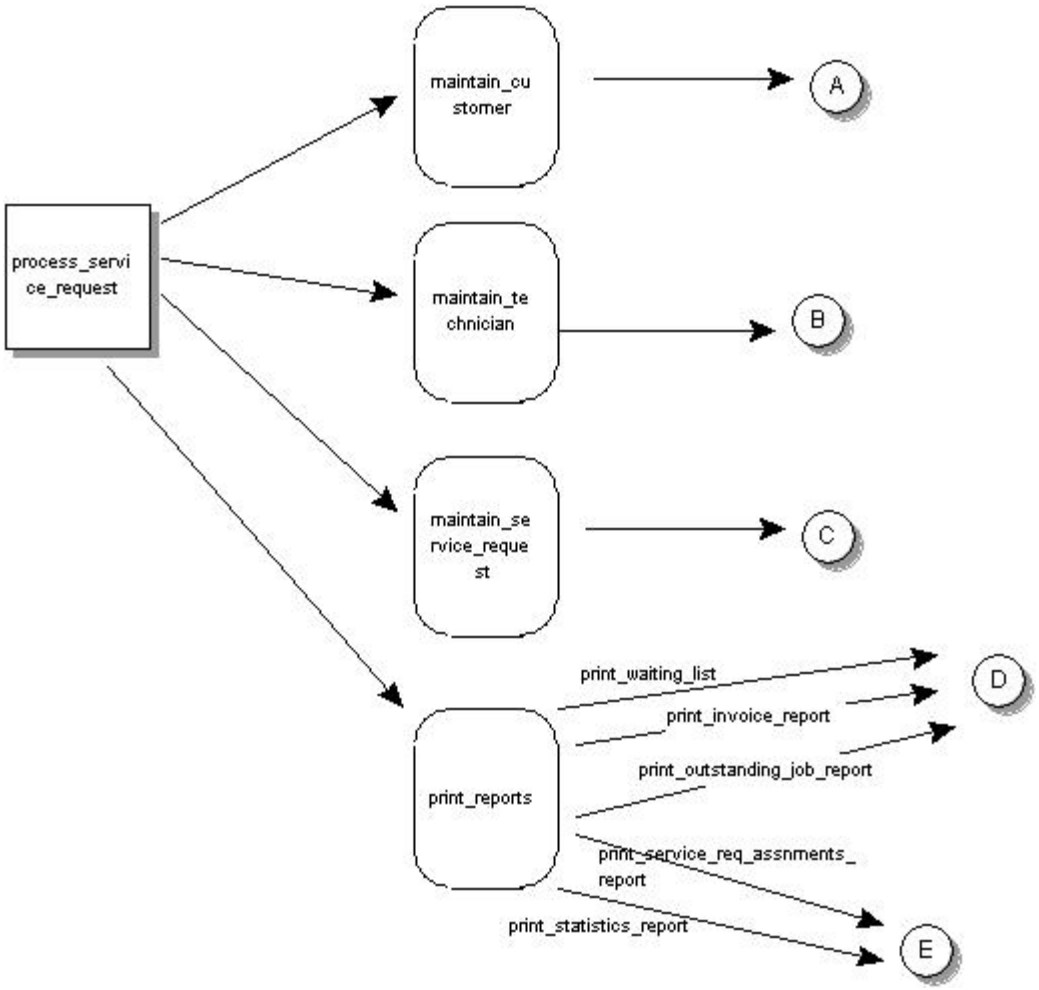
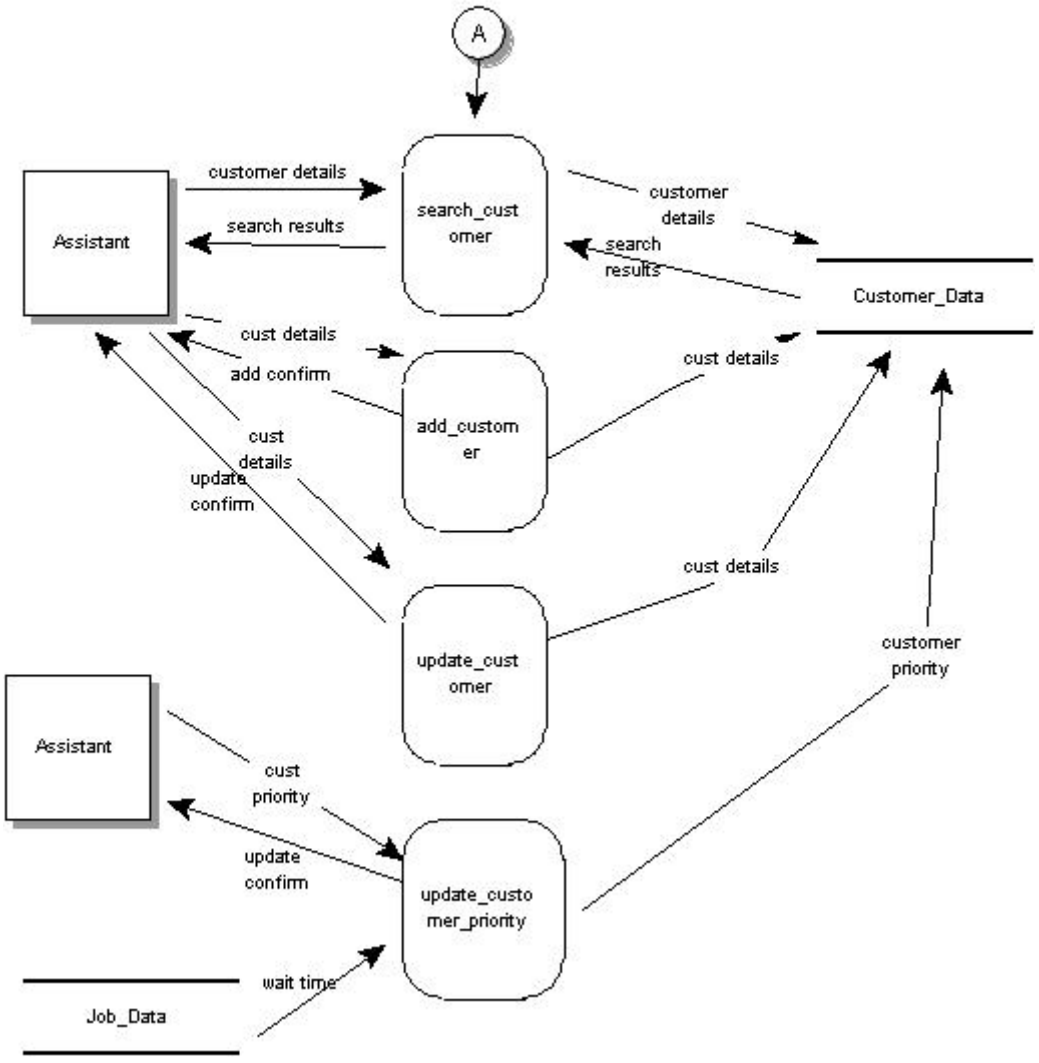
Top Level OOa&D Data Flow Diagram



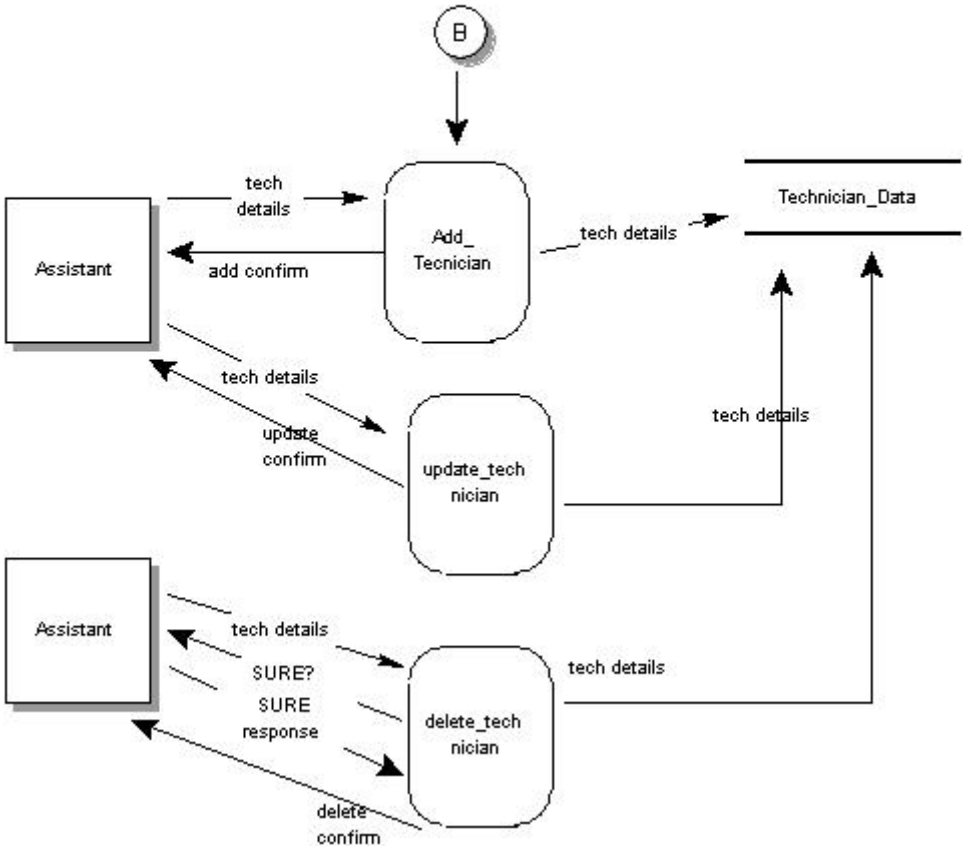
Level One OOa&D Data Flow Diagram



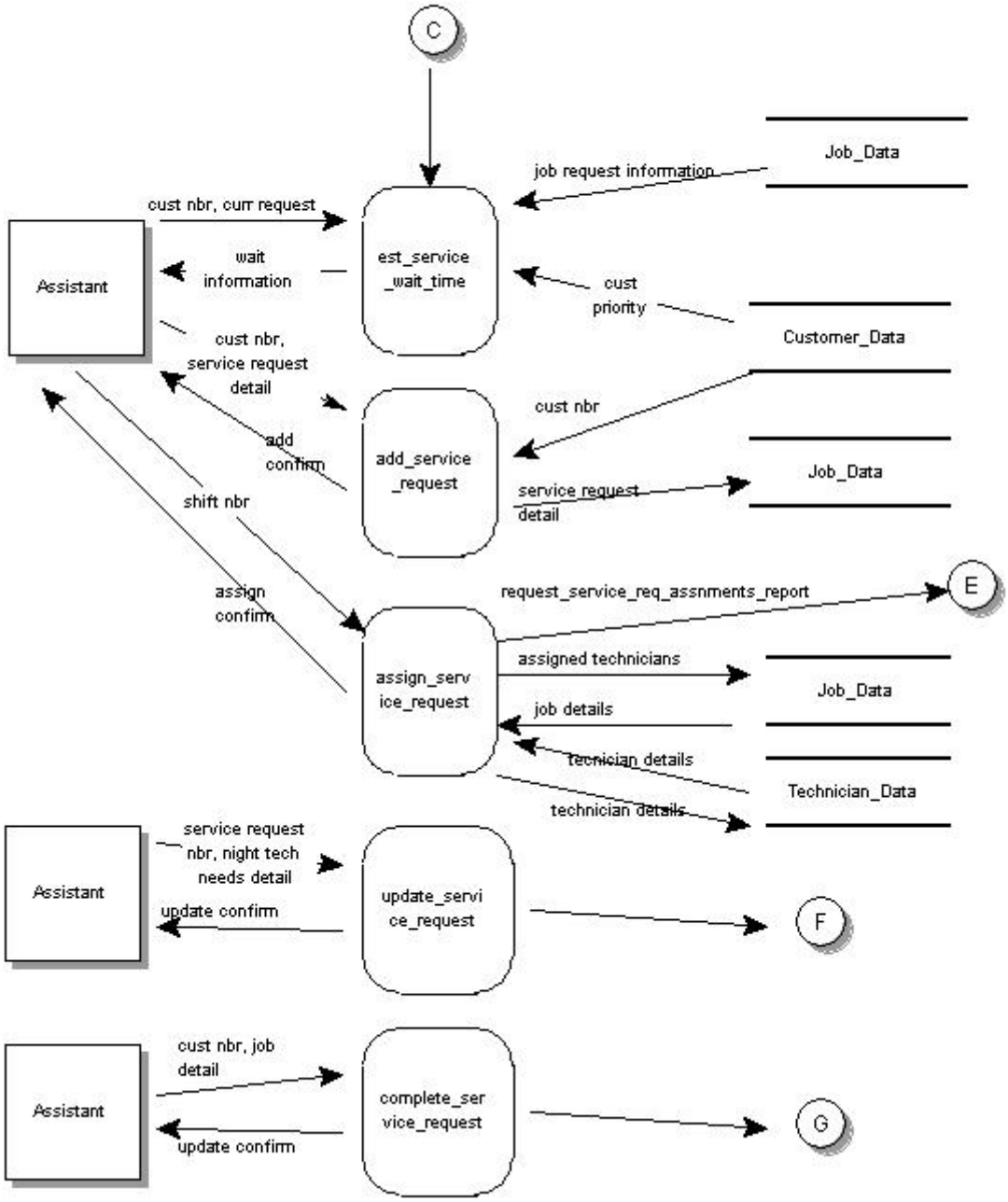
Customer Detail Data Flow Diagram



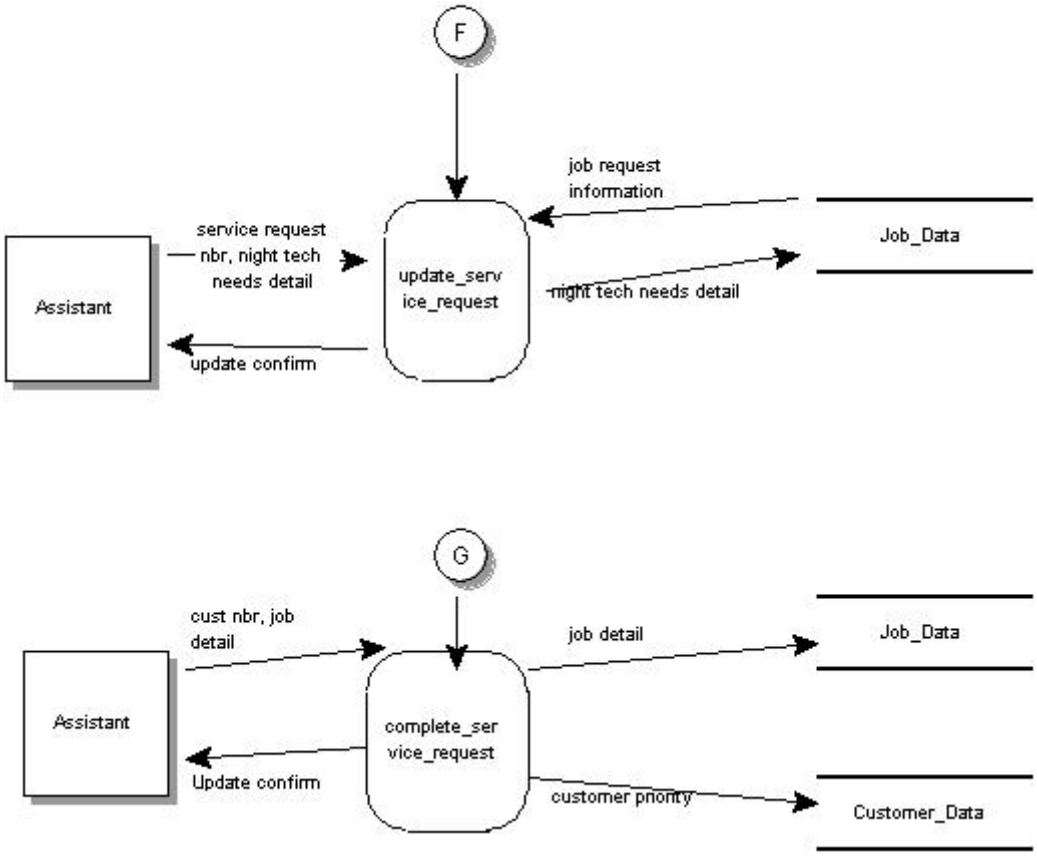
Maintain Technician Data Flow Diagram



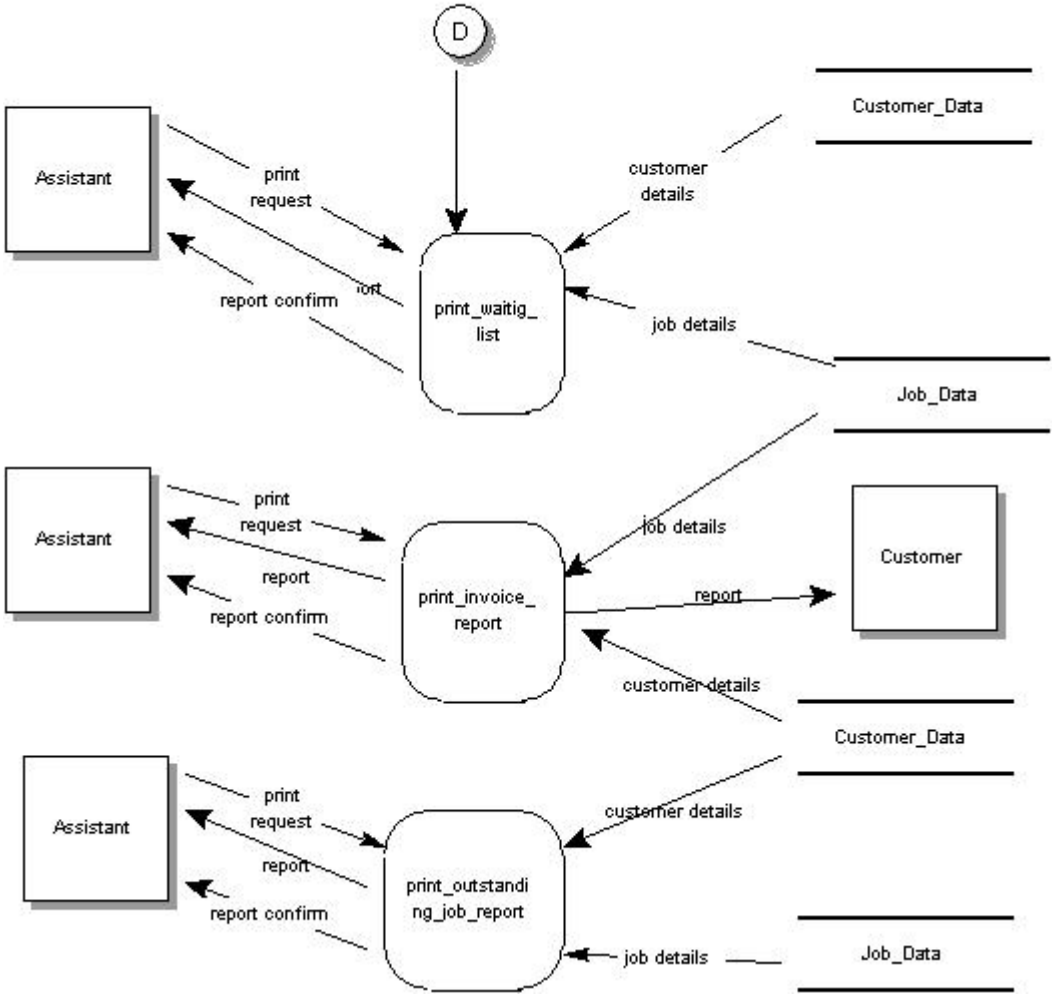
Maintain Service Request Data Flow Diagram



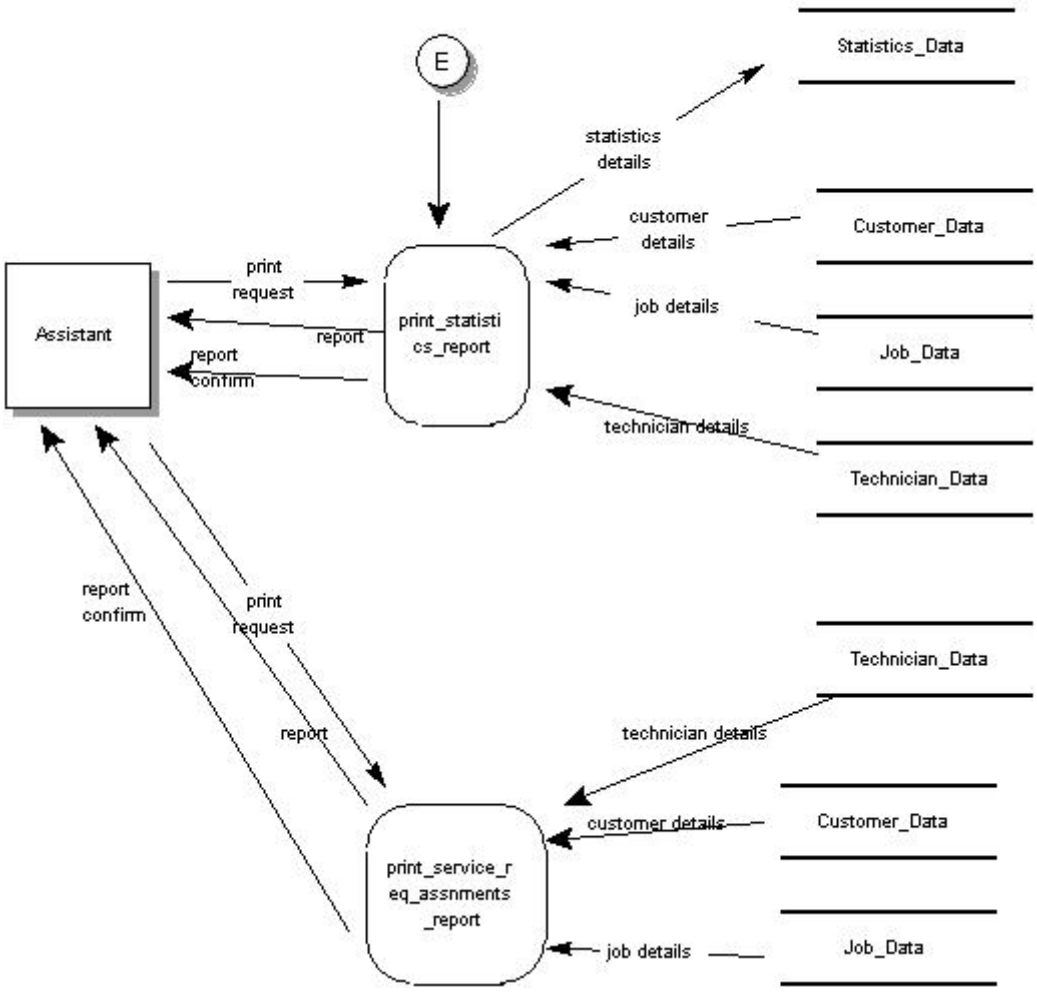
Maintain Service Request Data Flow Diagram #2



Print Reports Data Flow Diagram #1



Print Reports Data Flow Diagram #2



4-3-09

Attributes, Files, Processes

CUSTOMER DATA

- Customer Name
- Customer Number
- Customer Priority
- Phone number
- Billing address
- Total day and night blocks being billed
- Total amount due

TECH DATA

- Tech name
- Tech number
- Tech shift

JOB DATA

- Shift
- Assigned Technician
- Number
- Customer
- Shift and block number

STATS DATA

- Total 4-hour blocks used
- Techs that worked on job
- Customer info
- Service request number
- Average waiting time before job is started
- Average queue length
- Percentage of time queue is empty
- The number of blocks a technician is idle
- The number of jobs that cannot be continued at night
- Average waiting time for customers for each priority

FILES

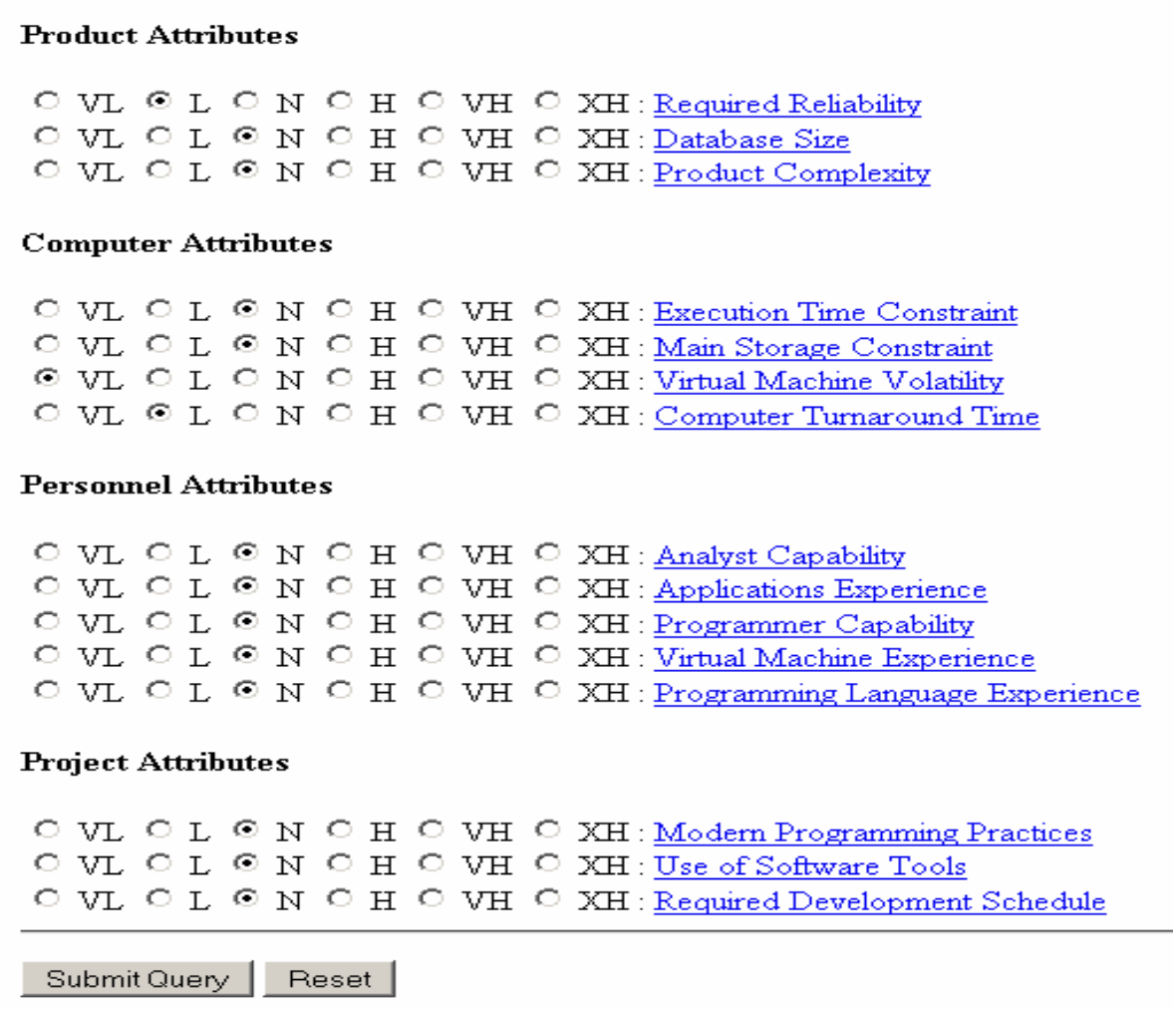
- Customer_Data
- Tech_Data
- Statistics_Data
- Job_Data

PROCESSES

- Add Customer
- Search Customer
- Update Customer
- Update Customer Priority
- Estimate Service Wait Time
- Add Service Request
- Update Service Request
- Complete Service Request
- Assign Service Request
- Add Technician
- Update Technician
- Delete Technician
- Print Invoice Report
- Print Waiting List Report
- Print Statistics Report
- Print Service Request Assignments Report
- Print Outstanding Job Report

COCOMO II

I did some research and found an online “COCOMO 81 Intermediate Model Implementation”(http://sunset.usc.edu/research/COCOMOII/cocomo81_pgm/cocomo81.html) calculator. After this had been found, more research was done in order to find other projects of relatively the same complexity and software development method (which was determined to be semi-detached) in order to estimate the number of lines of code needed for this project. From this research it was concluded that approximately 5000 lines of codes would be needed. Once this was done, the data was then used in combination with the COCOMO calculator using the values as seen below :



Once all of the data was entered and everything seemed correct, *Submit Query* was then clicked and produced the following results.

Results:

Effort = 12.12 Person Months

Schedule = 5.99 Months

You submitted the following name / value pairs:

- size = 5000
- mode = 1.12
- rely = 0.88
- data = 1.00
- cplx = 1.00
- time = 1.00
- stor = 1.00
- virt = 0.87
- turn = 0.87
- acap = 1.00
- aexp = 1.00
- pcap = 1.00
- vexp = 1.00
- lexp = 1.00
- modp = 1.00
- tool = 1.00
- sced = 1.00

Thank you for your interest in this model.

As can it can be seen it is estimated that 12.12 person months would be needed in order to complete this project based off of the current estimations, with a schedule of 6 months.

The cost percentages of the classical development phases found in *Figure 1.4* of the textbook (page 13) are listed here:

Requirements and analysis (specification) phases	21%
Design Phase	18
Implementation Phase	
Coding (including unit testing)	36
Integration	24

These cost percentages were the basis for the time estimates of each phase of the OOA&D project. The reason for this is the assumption was made that the cost of each phase very closely relates to the time required to complete each phase.

Time estimates per phase for the software project using the above information and assumptions for a two-person team throughout the duration of the project are:

Phase	**Cost Percentage**	**Time Estimate**
Requirements	9%	.54 months (2.25 weeks)
Analysis	12	.72 months (3.5 weeks)
Design	18	1.08 months (4 weeks)
Implementation		
Coding	36	2.16 months (9.25 weeks)
Integration	24	1.44 months (5 weeks)
Totals	**99**	**5.94 months (24 weeks)**