**Description**

Create two new programs called:

”**A5-SalaryReport-5A”**

”**A5-SalaryReport-5B”**

Program **A5-SalaryReport-5A** will read records from a data file named “**A5.dat**”; perform calculations and formatting based on the values of fields in the data records, and write a formatted report output to a file named

“**A5-SalaryReport-5A.out**” and write data records that it did not use to a file named “**A5-SalaryData-NonGrad.dat**”.

Program **A5-SalaryReport-5B** will read records from a data file named “**A5-SalaryData-NonGrad.dat**”; perform calculations and formatting based on the values of fields in the data records, and write a formatted report output to a file named “**A5-SalaryReport-5B.out**”.

**Please read through all of the requirements carefully before proceeding with the design and implementation of your assignment.**

You should use the solution to Assignment 4 as the starter file for both programs in Assignment 5.

**Specification 5A**

1. Create a new program 5A and use the cobol from Assignment 4 as the starter program.
2. Alter the 5A program to accommodate the layout of the input file:
3. The EDUCATION-CODE and YEARS-OF-SERVICE fields are reversed in order
4. There is a new field called BUDGET-ESTIMATE. It is PIC 9(6)V99, and is located right after the SALARY field.
5. Change the number of lines per page to 20.   
     
   FYI: When viewing the output in Sublime Text (or whatever text editor you use) it may be necessary to turn Word Wrap off (View -> Word Wrap), it makes the output somewhat easier to read.
6. Make the headings specific for Grads (as apposed to the generic headings from Assignment 4)
7. Add a second output file:

Records for GRADS are to be output to the “normal” report output.  
NON-GRAD records are output to a **DATA FILE** that is to be processed by program 5B.

1. Add another SELECT statement, an FD and 01, OPEN’s and CLOSE’s as well as the logic to write records to the DATA FILE.
2. If you designed Assignment 4 as recommended with paragraphs for N and G then you should put the actual WRITE logic in the G and N paragraphs themselves.

If you did NOT have G and N paragraphs you may choose to re-design the program to make things easier.

1. When you output to a DATA FILE the rules are somewhat different. You should NOT be doing any editing on numeric fields, and you should create the file so it looks like the input file definition we normally use – so for numeric fields use 9, V and S only.
2. Records in this file should be formatted exactly like the records from the input file.
3. Remember that you will need to have line / page counters and logic for the print file, **but not for the Data File**.
4. Add the new BUDGET-ESTIMATE and BUDGET-DIFF fields to the output Salary Report.

The BUDGET-ESTIMATE field is how much has been budgeted for the new salary. It is basically someone’s guess of what the new salary is going to be and comes directly from the input record.

The BUDGET-DIFF field is calculated by **subtracting the calculated New Salary from the Budget Estimate**. If the budget amount is too low, the budget difference field will be negative.

For example:

OLD INCREASE NEW BUDGET DIFF

004 ACHER WILLIAM 7,260.05 $0.00 $ 7,260.05 7,200.00 -60.05

William’s new salary is $7,260.05. His budgeted amount is $7,200.00.

There is a $60.05 shortfall (therefore DIFF is negative).

FYI: Use Floating – signs on the Budget Difference output field for the Grads, and use an S on the Non-grads output file.

1. Revise the average increases reported appropriately.
2. Add another summary at the end of the report showing the total of the budget differences. Include a label identifying the nature of the difference. (e.g. “GRADUATE TOTAL BUDGET DIFF”)

**Specification 5B**

1. Write a second program 5B which will read in, process, and print out the NON-GRAD file that 5A produced. The source code from Assignment 4 can be used as a starter program for this step with the following modifications:
2. Program 5B only has to read, process, and print the input records in the report layout. (This includes the position classification, calculating the increase, and calculating the new salary, optional page counts, and final totals)
3. The output from 5B will look like 5A’s, except it will only be for the ‘N’ records. It should have headings, 20 lines per page, and final totals applicable to the Non-Grad report only.
4. Copy the non-Grad data file created by program 5A to the data folder you setup for program 5B, so program 5B can open this file for input.
5. Print out the Averages at the end of the report, but it is only necessary to print out the averages that are applicable to NON-GRADS   
   (‘Prog’ and ‘Jr Prog’ since all N’s are one of those categories).
6. Add another summary at the end of the report showing the total of the budget differences. Include a label identifying the nature of the difference (e.g. NON-GRAD TOTAL BUDGET DIFF”).

**Flowchart**

Produce a System Flowchart showing the two programs and the related files the programs are using. This is not a structure chart for each program, but a higher level diagram showing programs and files.

**Submission Requirements**

**Turn in two separate zip or 7z archives containing the Visual Studio (VS) project and solution files for each program 5A and 5B to the drop box in your DC Connect Lab Section**

**Marking**

**Program 5A**

**25** marks for following the programming standards document

**2** marks for report heading stored in working-storage and output on first page only

**2** marks for each page heading stored in working-storage and output on each page  
**2** marks for 20 detail lines per page

**10** marks for column headings aligned over detail line columns

**10** marks for columns in detail line having correct output format and valid data

**8** marks for correct rounded calculations of calculated fields in detail line

(Increase %, Pay Increase, New Salary, Budget Diff)

**5** marks for blank line before and after report heading, blank line before total line, blank line before summary totals, one page break after the first page only

**2** marks for 2 pages with page numbers from 1 to 2

**15** marks for 2 pages with 5 correct class counts on each page, and four correct summary totals of average increases on only the last page, and Graduate Budget Difference on the last page

**22** marks for correct 22 records in Non-Grad data file created by program 5A

**2** marks for complete VS project submission in zip or 7z file  
**2** marks for correct program name

**2** marks for correct output file name

**Subtotal 109**

**Program 5B**

**25** marks for following the programming standards document

**2** marks for report heading stored in working-storage and output on first page only

**2** marks for each page heading stored in working-storage and output on each page  
**2** marks for 10 detail lines per page

**10** marks for column headings aligned over detail line columns

**10** marks for columns in detail line having correct output format and valid data

**8** marks for correct rounded calculations of calculated fields in detail line

(Increase %, Pay Increase, New Salary, Budget Diff)

**5** marks for blank line before and after report heading, blank line before total line, blank line before summary totals, one page break after the first page

**2** marks for 2 pages with page numbers from 1 to 2

**15** marks for 2 pages with 5 correct class counts on each page, and four correct summary totals of average increases on only the last page, and Non-Graduate Budget Difference on the last page

**2** marks for complete VS project submission in zip or 7z file  
**2** marks for correct program name

**2** marks for correct output file name

**Subtotal 87 marks**

**4 marks for system flow chart**

**TOTAL 200 marks**