

This assignment adds major functionality to your Assignment 8 program. It adds four external subprograms, to each of which you will need to pass at least one parameter or more.

To start, copy your ASSIGN8 PDSE member and name the new PDSE member ASSIGN9. Rename the main CSECT PAYROLL5. Don't forget to change the END statement PAYROLL5 too!

PAYROLL5 will drive the processing of the payroll information to create the report you created in Assignment 8.

The input data set is very similar to the previous assignment's input data set:

```
DSN=KC02322.CSCI360.DATAFA20(DATA9),DISP=SHR
```

Note that the first record holds the withholding percentage as before. This one record may be read in the main program but all of the rest must be read in BUILDTBL described below.

### External Subprograms

**Implement each of the following subprograms ONE AT A TIME! Get it working before moving to the next.**

- BUILDTBL

This subprogram will read the input file and place the character (employee name) and packed decimal fields (employee ID, hourly pay rate, hours worked, deductions and bonus) for each employee into a table defined in the main program's storage. Each entry of the table should only be as long as absolutely necessary to store an employee's data. The table is defined in the storage of the main program.

- PROCTBL

This subprogram will process the employee data stored in the table in a loop creating the report and calling CALCNPAY when necessary. Keep running totals in this subprogram and, when the table and all employees have been detailed, print the totals page and, when ready, call CALCAVG to calculate each of the averages in turn.

- CALCNPAY

This external subprogram will calculate the withholding amount and net pay amount. Pass a parameter list referencing ONLY the fields necessary to calculate the employee withholding amount and net pay amount.

- CALCAVG

This external subprogram will calculate a single average. It must be called each time an average needs to be calculated. Pass a different parameter list to this subprogram referencing the packed decimal fields necessary to calculate the average.

**Notes**

- The EMPTBL and running totals fields will all be declared in PAYROLL5's storage.
- PAYROLL5 calls BUILD\_TBL first and then PROCTBL.
- PROCTBL calls subprogram CALCNPAY when necessary and, when it is done processing all of the employees and is ready to calculate and print averages on the totals page, calls CALCAVGS as necessary.
- Use a DSECT for both the input record and the table entry. A DSECT should only be declared above the CSECT in which it is used. The names of a DSECT and all of its fields must begin with a dollar sign.
- Once again, pay close attention to the exact output provided and what it looks like to help you build your program.
- Note that you might get an addressability error in PAYROLL5. If so, move your 18-fullword save area to the top of storage (right after the ORG and DC statements that immediately follow the LTORG). Also, add the following immediately after standard entry linkage for PAYROLL5 only:

```
LA      11,4095(,12)
LA      11,1(,11)
USING   PAYROLL5+4096,11
```

This establishes register 11 as a second base register that takes over from register 12 when your program is longer than 4095 bytes.

Document your program completely according to the *CSCI 360 Documentation and Coding Guidelines* in Course Documents on Blackboard and submit your single .txt file on Blackboard as before.