Opgave 1

```cobol
       IDENTIFICATION DIVISION.
       PROGRAM-ID. HELLO.

       DATA DIVISION.
       WORKING-STORAGE SECTION.
       01 VAR-TEXT          PIC X(30) VALUE "HELLO med Variabel".

       PROCEDURE DIVISION.
      * Nedenfor kommer en DISPLAY - COBOLs måde at skrive i konsollen
       DISPLAY "HELLO, WORLD!"
       DISPLAY VAR-TEXT
       STOP RUN.
```

Opgave 2

```cobol
       IDENTIFICATION DIVISION.
       PROGRAM-ID. Opgave2.

       DATA DIVISION.
       WORKING-STORAGE SECTION.
      *----------------------------------------------------*
      * Variabler                                          *
      *----------------------------------------------------*
       01  KUNDE-ID       PIC X(10)   VALUE SPACES.
       01  FORNAVN        PIC X(20)   VALUE SPACES.
       01  EFTERNAVN      PIC X(20)   VALUE SPACES.
       01  KONTONUMMER    PIC X(20)   VALUE SPACES.
       01  BALANCE        PIC 9(7)V99 VALUE ZEROS.
       01  VALUTAKODE     PIC X(3)    VALUE SPACES.

       PROCEDURE DIVISION.
      *----------------------------------------------------*
      * Tildel værdier til variabler                       *
      *----------------------------------------------------*
           MOVE "K123456789"  TO KUNDE-ID
           MOVE "Morten"      TO FORNAVN
           MOVE "Jensen"      TO EFTERNAVN
           MOVE "DK1234567890" TO KONTONUMMER
           MOVE 12345.67      TO BALANCE
           MOVE "DKK"         TO VALUTAKODE


      *----------------------------------------------------*
      * Udskriv værdierne                                  *
      *----------------------------------------------------*
           DISPLAY "-------------------------------------"
           DISPLAY "Kunde ID       : " KUNDE-ID
           DISPLAY "Navn           : " FORNAVN " " EFTERNAVN
           DISPLAY "Kontonummer    : " KONTONUMMER
           DISPLAY "Balance        : " BALANCE " " VALUTAKODE
           DISPLAY "-------------------------------------"

           STOP RUN.
```

Opgave 3

```cobol
 IDENTIFICATION DIVISION.
 PROGRAM-ID. Opgave3.

 DATA DIVISION.
 WORKING-STORAGE SECTION.
* ----------------------------------------------------
* Oprindelige variabler
* ----------------------------------------------------
    01  KUNDE-ID          PIC X(10)   VALUE SPACES.
    01  FORNAVN           PIC X(20)   VALUE SPACES.
    01  EFTERNAVN         PIC X(20)   VALUE SPACES.
    01  KONTONUMMER       PIC X(20)   VALUE SPACES.
    01  BALANCE           PIC 9(7)V99 VALUE ZEROS.
    01  VALUTAKODE        PIC X(3)    VALUE SPACES.


* ----------------------------------------------------
* Variabler til fuldt navn og renset output
* ----------------------------------------------------
    01  FULDT-NAVN        PIC X(40)   VALUE SPACES.
    01  RENS-FULDT-NAVN   PIC X(40)   VALUE SPACES.

    01  IX                PIC 9(2)    VALUE 1.
    01  IX2               PIC 9(2)    VALUE 0.
    01  CURRENT-CHAR      PIC X(1)    VALUE SPACE.
    01  PREVIOUS-CHAR     PIC X(1)    VALUE SPACE.

 PROCEDURE DIVISION.
* ----------------------------------------------------
* Flyt data til kundeinfo
* ----------------------------------------------------
    MOVE "K123456789"    TO KUNDE-ID
    MOVE "Michael B"     TO FORNAVN
    MOVE "Nielsen"       TO EFTERNAVN
    MOVE "DK0987654321"  TO KONTONUMMER
    MOVE 98765.43        TO BALANCE
    MOVE "DKK"           TO VALUTAKODE

* ----------------------------------------------------
* Sammensæt fornavn og efternavn til fuldt navn
* ----------------------------------------------------
    STRING FORNAVN DELIMITED BY SIZE
           " "    DELIMITED BY SIZE
           EFTERNAVN DELIMITED BY SIZE
       INTO FULDT-NAVN
    END-STRING

* ----------------------------------------------------
```

```cobol
* Vis fuldt navn før løkke
* ----------------------------------------------------
      DISPLAY "FOER LOOP (FULDT-NAVN) : [" FULDT-NAVN "]"


* ----------------------------------------------------
* Loop for at fjerne ekstra mellemrum
* ----------------------------------------------------
      MOVE SPACE TO RENS-FULDT-NAVN
      MOVE 1     TO IX
      MOVE 0     TO IX2
      MOVE SPACE TO PREVIOUS-CHAR

      PERFORM VARYING IX FROM 1 BY 1
          UNTIL IX > LENGTH OF FULDT-NAVN
          MOVE FULDT-NAVN(IX:1) TO CURRENT-CHAR

          IF CURRENT-CHAR NOT = SPACE
            OR PREVIOUS-CHAR NOT = SPACE
              ADD 1 TO IX2
              MOVE CURRENT-CHAR TO RENS-FULDT-NAVN(IX2:1)
          END-IF

          MOVE CURRENT-CHAR TO PREVIOUS-CHAR
      END-PERFORM.

* ----------------------------------------------------
* Vis fuldt navn efter loop
* ----------------------------------------------------
      DISPLAY "EFTER LOOP (RENS-FULDT-NAVN) : ["
              RENS-FULDT-NAVN "]"


* ----------------------------------------------------
* Udskriv resultat sammen med øvrige kundeinfo
* ----------------------------------------------------
      DISPLAY "----------------------------------------"
      DISPLAY "Kunde ID       : " KUNDE-ID
      DISPLAY "Navn (renset)  : " RENS-FULDT-NAVN
      DISPLAY "Kontonummer    : " KONTONUMMER
      DISPLAY "Balance        : " BALANCE " " VALUTAKODE
      DISPLAY "----------------------------------------"

      STOP RUN.
```

Opgave 4

```cobol
       IDENTIFICATION DIVISION.
       PROGRAM-ID. Opgave4.

       DATA DIVISION.
       WORKING-STORAGE SECTION.
      * --------------------------------------------------
      * Struktureret kundeoplysninger
      * --------------------------------------------------
           01 KUNDEOPL.
               02 KUNDE-ID       PIC X(10) VALUE SPACES.
               02 NAVN.
                   03 FORNAVN    PIC X(20) VALUE SPACES.
                   03 EFTERNAVN  PIC X(20) VALUE SPACES.
               02 KONTOINFO.
                   03 KONTONUMMER PIC X(20) VALUE SPACES.
                   03 BALANCE     PIC 9(7)V99 VALUE ZEROS.
                   03 VALUTAKODE  PIC X(3) VALUE SPACES.

      * --------------------------------------------------
      * Beregnede variabler udenfor strukturen
      * --------------------------------------------------
           01 FULDT-NAVN         PIC X(40) VALUE SPACES.
           01 RENS-FULDT-NAVN    PIC X(40) VALUE SPACES.
           01 IX                 PIC 9(2) VALUE 1.
           01 IX2                PIC 9(2) VALUE 0.
           01 CURRENT-CHAR       PIC X(1) VALUE SPACE.
           01 PREVIOUS-CHAR      PIC X(1) VALUE SPACE.

       PROCEDURE DIVISION.
      * --------------------------------------------------
      * Flyt data ind i strukturen
      * --------------------------------------------------
           MOVE "K123456789"   TO KUNDE-ID OF KUNDEOPL
           MOVE "Michael B"    TO FORNAVN OF NAVN OF KUNDEOPL
           MOVE "Nielsen"      TO EFTERNAVN OF NAVN OF KUNDEOPL
           MOVE "DK0987654321" TO KONTONUMMER OF KONTOINFO OF KUNDEOPL
           MOVE 98765.43       TO BALANCE OF KONTOINFO OF KUNDEOPL
           MOVE "DKK"          TO VALUTAKODE OF KONTOINFO OF KUNDEOPL

      * --------------------------------------------------
      * Sammensæt fuldt navn
      * --------------------------------------------------
           STRING FORNAVN OF NAVN OF KUNDEOPL DELIMITED BY SIZE
                  " " DELIMITED BY SIZE
                  EFTERNAVN OF NAVN OF KUNDEOPL DELIMITED BY SIZE
               INTO FULDT-NAVN
           END-STRING
```

```cobol
     * -------------------------------------------------
     * Loop for at fjerne ekstra mellemrum
     * -------------------------------------------------
           MOVE SPACE TO RENS-FULDT-NAVN
           MOVE 1      TO IX
           MOVE 0      TO IX2
           MOVE SPACE TO PREVIOUS-CHAR

           PERFORM VARYING IX FROM 1 BY 1
               UNTIL IX > LENGTH OF FULDT-NAVN
               MOVE FULDT-NAVN(IX:1) TO CURRENT-CHAR

               IF CURRENT-CHAR NOT = SPACE
                  OR PREVIOUS-CHAR NOT = SPACE
                  ADD 1 TO IX2
                  MOVE CURRENT-CHAR TO RENS-FULDT-NAVN(IX2:1)
               END-IF

               MOVE CURRENT-CHAR TO PREVIOUS-CHAR
           END-PERFORM.

     * -------------------------------------------------
     * Vis individuelle felter
     * -------------------------------------------------
           DISPLAY "---------------------------------------"
           DISPLAY "Kunde ID       : " KUNDE-ID OF KUNDEOPL
           DISPLAY "Navn (renset)  : " RENS-FULDT-NAVN
           DISPLAY "Kontonummer    : " KONTONUMMER OF KONTOINFO OF
                                        KUNDEOPL
           DISPLAY "Balance        : " BALANCE OF KONTOINFO OF KUNDEOPL
                                        " "
                                        VALUTAKODE OF KONTOINFO OF KUNDEOPL
           DISPLAY "---------------------------------------"

     * -------------------------------------------------
     * Vis hele strukturen på 01-niveau
     * -------------------------------------------------
           DISPLAY "HELE STRUKTUREN:"
           DISPLAY KUNDEOPL

           STOP RUN.
```

Opgave 5

```cobol
       IDENTIFICATION DIVISION.
       PROGRAM-ID. Opgave4.

       DATA DIVISION.
       WORKING-STORAGE SECTION.
      * --------------------------------------------------
      * Struktureret kundeoplysninger
      * --------------------------------------------------
           01 KUNDEOPL.
               02 KUNDE-ID      PIC X(10) VALUE SPACES.
               02 NAVN.
                   03 FORNAVN   PIC X(20) VALUE SPACES.
                   03 EFTERNAVN PIC X(20) VALUE SPACES.
               02 KONTOINFO.
                   03 KONTONUMMER PIC X(20) VALUE SPACES.
                   03 BALANCE     PIC 9(7)V99 VALUE ZEROS.
                   03 VALUTAKODE  PIC X(3) VALUE SPACES.

      * --------------------------------------------------
      * Beregnede variabler udenfor strukturen
      * --------------------------------------------------
           01 FULDT-NAVN        PIC X(40) VALUE SPACES.
           01 RENS-FULDT-NAVN   PIC X(40) VALUE SPACES.
           01 IX                PIC 9(2) VALUE 1.
           01 IX2               PIC 9(2) VALUE 0.
           01 CURRENT-CHAR      PIC X(1) VALUE SPACE.
           01 PREVIOUS-CHAR     PIC X(1) VALUE SPACE.

       PROCEDURE DIVISION.
      * --------------------------------------------------
      * Flyt data ind i strukturen
      * --------------------------------------------------
           MOVE "K123456789"    TO KUNDE-ID OF KUNDEOPL
           MOVE "Michael B"     TO FORNAVN OF NAVN OF KUNDEOPL
           MOVE "Nielsen"       TO EFTERNAVN OF NAVN OF KUNDEOPL
           MOVE "DK0987654321" TO KONTONUMMER OF KONTOINFO OF KUNDEOPL
           MOVE 98765.43        TO BALANCE OF KONTOINFO OF KUNDEOPL
           MOVE "DKK"           TO VALUTAKODE OF KONTOINFO OF KUNDEOPL

      * --------------------------------------------------
      * Sammensæt fuldt navn
      * --------------------------------------------------
           STRING FORNAVN OF NAVN OF KUNDEOPL DELIMITED BY SIZE
                   " " DELIMITED BY SIZE
                   EFTERNAVN OF NAVN OF KUNDEOPL DELIMITED BY SIZE
               INTO FULDT-NAVN
           END-STRING
```

```cobol
      * ----------------------------------------------------
      * Loop for at fjerne ekstra mellemrum
      * ----------------------------------------------------
           MOVE SPACE TO RENS-FULDT-NAVN
           MOVE 1     TO IX
           MOVE 0     TO IX2
           MOVE SPACE TO PREVIOUS-CHAR

           PERFORM VARYING IX FROM 1 BY 1
               UNTIL IX > LENGTH OF FULDT-NAVN
               MOVE FULDT-NAVN(IX:1) TO CURRENT-CHAR

               IF CURRENT-CHAR NOT = SPACE
                  OR PREVIOUS-CHAR NOT = SPACE
                  ADD 1 TO IX2
                  MOVE CURRENT-CHAR TO RENS-FULDT-NAVN(IX2:1)
               END-IF

               MOVE CURRENT-CHAR TO PREVIOUS-CHAR
           END-PERFORM.

      * ----------------------------------------------------
      * Vis individuelle felter
      * ----------------------------------------------------
           DISPLAY "--------------------------------------"
           DISPLAY "Kunde ID       : " KUNDE-ID OF KUNDEOPL
           DISPLAY "Navn (renset)  : " RENS-FULDT-NAVN
           DISPLAY "Kontonummer    : " KONTONUMMER OF KONTOINFO OF
                                       KUNDEOPL
           DISPLAY "Balance        : " BALANCE OF KONTOINFO OF KUNDEOPL
                                       " "
                                       VALUTAKODE OF KONTOINFO OF KUNDEOPL
           DISPLAY "--------------------------------------"

      * ----------------------------------------------------
      * Vis hele strukturen på 01-niveau
      * ----------------------------------------------------
           DISPLAY "HELE STRUKTUREN:"
           DISPLAY KUNDEOPL

           STOP RUN.
```

Opgave 6

```cobol
        IDENTIFICATION DIVISION.
        PROGRAM-ID. Opgave6.

        ENVIRONMENT DIVISION.
        INPUT-OUTPUT SECTION.
        FILE-CONTROL.
            SELECT KUNDEFIL ASSIGN TO "Kundeoplysninger.txt"
                ORGANIZATION IS LINE SEQUENTIAL.

        DATA DIVISION.
        FILE SECTION.
        FD  KUNDEFIL.
        01 KUNDE-REKORD.
            COPY "KUNDEOPL.cpy".

        WORKING-STORAGE SECTION.
        01 EOF-FLAG          PIC X VALUE "N".
            88 END-OF-FILE    VALUE "Y".
            88 MORE-TO-READ   VALUE "N".

        01 FULDT-NAVN         PIC X(40) VALUE SPACES.
        01 RENS-FULDT-NAVN    PIC X(40) VALUE SPACES.

        PROCEDURE DIVISION.
        MAIN-PROGRAM.
            OPEN INPUT KUNDEFIL

            PERFORM UNTIL END-OF-FILE
                READ KUNDEFIL
                    AT END
                        SET END-OF-FILE TO TRUE
                    NOT AT END
                        *> Sammensæt fuldt navn
                        STRING FORNAVN DELIMITED BY SIZE
                                " " DELIMITED BY SIZE
                                EFTERNAVN DELIMITED BY SIZE
                           INTO FULDT-NAVN
                        END-STRING
                        MOVE FUNCTION TRIM(FULDT-NAVN) TO RENS-FULDT-NAVN

                        DISPLAY "--------------- Kunde ---------------"
                        DISPLAY "Kunde ID        : " KUNDE-ID
                        DISPLAY "Navn (renset)   : " RENS-FULDT-NAVN
                        DISPLAY "Kontonummer     : " KONTONUMMER OF
                        KONTOINFO
                        DISPLAY "Balance         : " BALANCE OF KONTOINFO
                        " " VALUTAKODE OF KONTOINFO
```

```cobol
                DISPLAY "Adresse        : " VEJNAVN OF ADDRESSE
                " " HUSNR OF ADDRESSE ", "
                                      ETAGE OF ADDRESSE
                                      SIDE OF ADDRESSE
                DISPLAY "By/Postnr      : " BY-X OF ADDRESSE " "
                 POSTNR OF ADDRESSE
                DISPLAY "Telefon/Email  : " TELEFON OF
                KONTAKTINFO " " EMAIL OF KONTAKTINFO
        END-READ
    END-PERFORM

    CLOSE KUNDEFIL
    STOP RUN.
```

Opgave 7

```cobol
       IDENTIFICATION DIVISION.
       PROGRAM-ID. Opgave7.

       ENVIRONMENT DIVISION.
       INPUT-OUTPUT SECTION.
       FILE-CONTROL.
           SELECT KUNDEFIL-IN ASSIGN TO "Kundeoplysninger.txt"
               ORGANIZATION IS LINE SEQUENTIAL.
           SELECT KUNDEFIL-OUT ASSIGN TO "KundeoplysningerOut.txt"
               ORGANIZATION IS LINE SEQUENTIAL.

       DATA DIVISION.
       FILE SECTION.

       FD  KUNDEFIL-IN.
       01  KUNDE-REKORD-IN.
           COPY "KUNDEOPL.cpy".

       FD  KUNDEFIL-OUT.
       01  KUNDE-ADR.
           02  NAVN-ADR         PIC X(100).

       WORKING-STORAGE SECTION.
       01  EOF-FLAG             PIC X VALUE "N".
           88  END-OF-FILE      VALUE "Y".
           88  MORE-TO-READ     VALUE "N".

       01  FULDT-NAVN           PIC X(40) VALUE SPACES.
       01  ADR-LINJE            PIC X(100) VALUE SPACES.
       01  BY-LINJE             PIC X(60) VALUE SPACES.
       01  KONTO-LINJE          PIC X(60) VALUE SPACES.
       01  KONTAKT-LINJE        PIC X(80) VALUE SPACES.

       PROCEDURE DIVISION.
       MAIN-PROGRAM.
           OPEN INPUT  KUNDEFIL-IN
                OUTPUT KUNDEFIL-OUT

           PERFORM UNTIL END-OF-FILE
               READ KUNDEFIL-IN
                   AT END
                       SET END-OF-FILE TO TRUE
                   NOT AT END
                       PERFORM BEHANDL-KUNDE
               END-READ
           END-PERFORM
```

```cobol
           CLOSE KUNDEFIL-IN
                 KUNDEFIL-OUT

           DISPLAY "Kundedata er nu skrevet til KundeoplysningerOut.txt"
           STOP RUN.


      *------------------------------------------------------------
      *  HOVEDRUTINE: Behandling og skrivning af én kunde
      *------------------------------------------------------------
       BEHANDL-KUNDE.
           PERFORM FORMAT-NAVN
           PERFORM FORMAT-KONTO
           PERFORM FORMAT-ADR
           PERFORM FORMAT-BY
           PERFORM FORMAT-KONTAKT

      *  SKRIV OUTPUT I RÆKKEFØLGE
           MOVE SPACES TO NAVN-ADR
           STRING "KUNDE-ID: " KUNDE-ID DELIMITED BY SIZE
                   INTO NAVN-ADR
           END-STRING
           WRITE KUNDE-ADR.

           MOVE SPACES TO NAVN-ADR
           STRING "NAVN: " FULDT-NAVN DELIMITED BY SIZE
                   INTO NAVN-ADR
           END-STRING
           WRITE KUNDE-ADR.

           MOVE SPACES TO NAVN-ADR
           STRING "KONTO: " KONTO-LINJE DELIMITED BY SIZE
                   INTO NAVN-ADR
           END-STRING
           WRITE KUNDE-ADR.

           MOVE SPACES TO NAVN-ADR
           STRING "ADRESSE: " ADR-LINJE DELIMITED BY SIZE
                   INTO NAVN-ADR
           END-STRING
           WRITE KUNDE-ADR.

           MOVE SPACES TO NAVN-ADR
           STRING "BY: " BY-LINJE DELIMITED BY SIZE
                   INTO NAVN-ADR
           END-STRING
           WRITE KUNDE-ADR.

           MOVE SPACES TO NAVN-ADR
```

```cobol
           STRING "KONTAKT: " KONTAKT-LINJE DELIMITED BY SIZE
                  INTO NAVN-ADR
           END-STRING
           WRITE KUNDE-ADR.

     *  BLANK LINJE MELLEM KUNDER
           MOVE SPACES TO NAVN-ADR
           WRITE KUNDE-ADR.
           EXIT.

     *------------------------------------------------------------
     *  PARAGRAFFER TIL FORMATERING
     *------------------------------------------------------------
       FORMAT-NAVN.
           MOVE SPACES TO FULDT-NAVN
           STRING FORNAVN DELIMITED BY SPACE
                  " " DELIMITED BY SIZE
                  EFTERNAVN DELIMITED BY SPACE
                  INTO FULDT-NAVN
           END-STRING
           MOVE FUNCTION TRIM(FULDT-NAVN) TO FULDT-NAVN
           EXIT.

       FORMAT-KONTO.
           MOVE SPACES TO KONTO-LINJE
           STRING KONTONUMMER OF KONTOINFO DELIMITED BY SIZE
                  " - " DELIMITED BY SIZE
                  BALANCE OF KONTOINFO DELIMITED BY SIZE
                  " " DELIMITED BY SIZE
                  VALUTAKODE OF KONTOINFO DELIMITED BY SIZE
                  INTO KONTO-LINJE
           END-STRING
           EXIT.

       FORMAT-ADR.
           MOVE SPACES TO ADR-LINJE
           STRING VEJNAVN OF ADDRESSE DELIMITED BY SPACE
                  " " DELIMITED BY SIZE
                  HUSNR OF ADDRESSE DELIMITED BY SPACE
                  " " DELIMITED BY SIZE
                  ETAGE OF ADDRESSE DELIMITED BY SPACE
                  " " DELIMITED BY SIZE
                  SIDE OF ADDRESSE DELIMITED BY SPACE
                  INTO ADR-LINJE
           END-STRING
           EXIT.

       FORMAT-BY.
```

```cobol
           MOVE SPACES TO BY-LINJE
           STRING POSTNR OF ADDRESSE DELIMITED BY SPACE
                  " " DELIMITED BY SIZE
                  BY-X OF ADDRESSE DELIMITED BY SPACE
                  INTO BY-LINJE
           END-STRING
           EXIT.

       FORMAT-KONTAKT.
           MOVE SPACES TO KONTAKT-LINJE
           STRING TELEFON OF KONTAKTINFO DELIMITED BY SPACE
                  " " DELIMITED BY SIZE
                  EMAIL OF KONTAKTINFO DELIMITED BY SPACE
                  INTO KONTAKT-LINJE
           END-STRING
           EXIT.
```

Opgave 8

```cobol
        IDENTIFICATION DIVISION.
        PROGRAM-ID. Opgave8.

        ENVIRONMENT DIVISION.
        INPUT-OUTPUT SECTION.
        FILE-CONTROL.
            SELECT KUNDEFIL ASSIGN TO "Kundeoplysninger.txt"
                ORGANIZATION IS LINE SEQUENTIAL.
            SELECT KONTOFIL ASSIGN TO "KontoOpl.txt"
                ORGANIZATION IS LINE SEQUENTIAL.
            SELECT OUT-FIL ASSIGN TO "KUNDEKONTO.txt"
                ORGANIZATION IS LINE SEQUENTIAL.

        DATA DIVISION.
        FILE SECTION.

        FD  KUNDEFIL.
        01  KUNDE-REKORD.
            COPY "KUNDEOPL.cpy".

        FD  KONTOFIL.
        01  KONTO-REKORD.
            COPY "KONTOOPL.cpy".

        FD  OUT-FIL.
        01  OUT-REKORD.
            02 OUTPUT-TEXT        PIC X(150).

        WORKING-STORAGE SECTION.
        01  EOF-KUNDE             PIC X VALUE "N".
            88 END-KUNDE          VALUE "Y".
            88 MORE-KUNDE         VALUE "N".

        01  EOF-KONTI             PIC X VALUE "N".
            88 END-KONTI          VALUE "Y".
            88 MORE-KONTI         VALUE "N".

        01  FULDT-NAVN            PIC X(40) VALUE SPACES.
        01  ADR-LINJE1            PIC X(60) VALUE SPACES.
        01  ADR-LINJE2            PIC X(40) VALUE SPACES.

        PROCEDURE DIVISION.
        MAIN-PROGRAM.
            OPEN INPUT KUNDEFIL
            OPEN OUTPUT OUT-FIL

            PERFORM UNTIL END-KUNDE
```

```cobol
            READ KUNDEFIL
                AT END
                    SET END-KUNDE TO TRUE
                NOT AT END
                    *> Formater kundedata
                    PERFORM FORMAT-NAVN
                    PERFORM FORMAT-VEJ
                    PERFORM FORMAT-BY

                    *> Skriv kundeheader og adresse
                    PERFORM SKRIV-KUNDE

                    *> Læs og skriv konti for denne kunde
                    PERFORM LÆS-KONTI

                    *> Skriv en blank linje mellem kunder
                    MOVE SPACES TO OUTPUT-TEXT
                    WRITE OUT-REKORD
            END-READ
        END-PERFORM

    CLOSE KUNDEFIL
    CLOSE OUT-FIL
    STOP RUN.

*> -------------------
*> Paragraf til behandling af navn
FORMAT-NAVN.
    STRING FORNAVN OF KUNDE-REKORD DELIMITED BY SPACE
           " " DELIMITED BY SIZE
           EFTERNAVN OF KUNDE-REKORD DELIMITED BY SPACE
           INTO FULDT-NAVN
    END-STRING
    EXIT.
*> Paragraf slut

*> -------------------
*> Paragraf til behandling af vejadresse
FORMAT-VEJ.
    STRING VEJNAVN OF ADDRESSE OF KUNDE-REKORD DELIMITED BY SIZE
           " " HUSNR OF ADDRESSE OF KUNDE-REKORD
               DELIMITED BY SIZE
           " " ETAGE OF ADDRESSE OF KUNDE-REKORD
               DELIMITED BY SIZE
           " " SIDE OF ADDRESSE OF KUNDE-REKORD DELIMITED BY SIZE
           INTO ADR-LINJE1
    END-STRING
    EXIT.
```

```cobol
      *> Paragraf slut

      *> -------------------
      *> Paragraf til behandling af by/postnummer
       FORMAT-BY.
           STRING POSTNR OF ADDRESSE OF KUNDE-REKORD DELIMITED BY SIZE
                  " " BY-X OF ADDRESSE OF KUNDE-REKORD DELIMITED BY SIZE
                  INTO ADR-LINJE2
           END-STRING
           EXIT.
      *> Paragraf slut

      *> -------------------
      *> Paragraf til at skrive kundeinfo
       SKRIV-KUNDE.
           MOVE SPACES TO OUTPUT-TEXT
           STRING "Kunde-ID: " KUNDE-ID OF KUNDE-REKORD
                             DELIMITED BY SIZE
                  " | Navn: " FULDT-NAVN DELIMITED BY SIZE
                  INTO OUTPUT-TEXT
           END-STRING
           WRITE OUT-REKORD

           MOVE SPACES TO OUTPUT-TEXT
           STRING "Adresse: " ADR-LINJE1 DELIMITED BY SIZE
                  ", " ADR-LINJE2 DELIMITED BY SIZE
                  INTO OUTPUT-TEXT
           END-STRING
           WRITE OUT-REKORD

           MOVE SPACES TO OUTPUT-TEXT
           STRING "Tlf: " TELEFON OF KONTAKTINFO OF KUNDE-REKORD
                        DELIMITED BY SIZE
                  " | Email: " EMAIL OF KONTAKTINFO OF KUNDE-REKORD
                             DELIMITED BY SIZE
                  INTO OUTPUT-TEXT
           END-STRING
           WRITE OUT-REKORD
           EXIT.
      *> Paragraf slut

      *> -------------------
      *> Paragraf til læsning og skrivning af konti
       LÆS-KONTI.
           OPEN INPUT KONTOFIL
           MOVE "N" TO EOF-KONTI

           PERFORM UNTIL END-KONTI
```

```cobol
            READ KONTOFIL
                AT END
                    SET END-KONTI TO TRUE
                NOT AT END
                    IF KUNDE-ID OF KONTO-REKORD = KUNDE-ID OF
                                   KUNDE-REKORD
                        PERFORM SKRIV-KONTI
                    END-IF
            END-READ
        END-PERFORM

        CLOSE KONTOFIL
        EXIT.
*> Paragraf slut


*> ------------------
*> Paragraf til skrivning af en enkelt konto
SKRIV-KONTI.
    MOVE SPACES TO OUTPUT-TEXT
    STRING "   Konto-ID: " KONTO-ID OF KONTO-REKORD
                            DELIMITED BY SIZE
           " | Type: "      KONTO-TYPE OF KONTO-REKORD
                            DELIMITED BY SIZE
           " | Saldo: " BALANCE OF KONTO-REKORD
                            DELIMITED BY SIZE
           " " VALUTA-KD OF KONTO-REKORD DELIMITED BY SIZE
           INTO OUTPUT-TEXT
    END-STRING
    WRITE OUT-REKORD
    EXIT.
*> Paragraf slut
```

Opgave 9

```cobol
        IDENTIFICATION DIVISION.
        PROGRAM-ID. Opgave9.

        ENVIRONMENT DIVISION.
        INPUT-OUTPUT SECTION.
        FILE-CONTROL.
            SELECT KUNDEFIL ASSIGN TO "Kundeoplysninger.txt"
                ORGANIZATION IS LINE SEQUENTIAL.
            SELECT KONTOFIL ASSIGN TO "KontoOpl.txt"
                ORGANIZATION IS LINE SEQUENTIAL.
            SELECT OUT-FIL ASSIGN TO "KUNDEKONTO.txt"
                ORGANIZATION IS LINE SEQUENTIAL.

        DATA DIVISION.
        FILE SECTION.

        FD  KUNDEFIL.
        01  KUNDE-REKORD.
            COPY "KUNDEOPL.cpy".

        FD  KONTOFIL.
        01  KONTO-REKORD.
            COPY "KONTOOPL.cpy".

        FD  OUT-FIL.
        01  OUT-REKORD.
            02 OUTPUT-TEXT        PIC X(150).

        WORKING-STORAGE SECTION.
        01  EOF-KUNDE             PIC X VALUE "N".
            88 END-KUNDE          VALUE "Y".
            88 MORE-KUNDE         VALUE "N".

        01  EOF-KONTI            PIC X VALUE "N".
            88 END-KONTI          VALUE "Y".
            88 MORE-KONTI         VALUE "N".

        01  FULDT-NAVN           PIC X(40) VALUE SPACES.
        01  ADR-LINJE1           PIC X(60) VALUE SPACES.
        01  ADR-LINJE2           PIC X(40) VALUE SPACES.

        *> Array til konti på 01 niveau
        01 KONTO-ARRAY OCCURS 50 TIMES.
            COPY "KONTOOPL.cpy".

        01 KONTO-COUNT           PIC 9(3) VALUE 0.
        01 IX-KONTI              PIC 9(3) VALUE 1.
```

```cobol
       PROCEDURE DIVISION.
       MAIN-PROGRAM.
           *> Læs kontofilen ind i array
           OPEN INPUT KONTOFIL
           MOVE 1 TO KONTO-COUNT
           MOVE "N" TO EOF-KONTI
           PERFORM UNTIL END-KONTI
               READ KONTOFIL
                   AT END
                       SET END-KONTI TO TRUE
                   NOT AT END
                       MOVE KONTO-REKORD TO KONTO-ARRAY(KONTO-COUNT)
                       ADD 1 TO KONTO-COUNT
               END-READ
           END-PERFORM
           CLOSE KONTOFIL

           OPEN INPUT KUNDEFIL
           OPEN OUTPUT OUT-FIL

           *> Læs kunder og match med konti i array
           PERFORM UNTIL END-KUNDE
               READ KUNDEFIL
                   AT END
                       SET END-KUNDE TO TRUE
                   NOT AT END
                       PERFORM FORMAT-NAVN
                       PERFORM FORMAT-VEJ
                       PERFORM FORMAT-BY
                       PERFORM SKRIV-KUNDE
                       PERFORM MATCH-KONTI
                       *> blank linje
                       MOVE SPACES TO OUTPUT-TEXT
                       WRITE OUT-REKORD
               END-READ
           END-PERFORM

           CLOSE KUNDEFIL
           CLOSE OUT-FIL
           STOP RUN.

      *> -------------------
      *> Formateringsparagraffer
       FORMAT-NAVN.
           STRING FORNAVN OF KUNDE-REKORD DELIMITED BY SPACE
                  " " DELIMITED BY SIZE
                  EFTERNAVN OF KUNDE-REKORD DELIMITED BY SPACE
```

```cobol
                 INTO FULDT-NAVN
           END-STRING
           EXIT.

       FORMAT-VEJ.
           STRING VEJNAVN OF ADDRESSE OF KUNDE-REKORD DELIMITED BY SIZE
                  " " HUSNR OF ADDRESSE OF KUNDE-REKORD DELIMITED BY SIZE
                  " " ETAGE OF ADDRESSE OF KUNDE-REKORD DELIMITED BY SIZE
                  " " SIDE OF ADDRESSE OF KUNDE-REKORD DELIMITED BY SIZE
                  INTO ADR-LINJE1
           END-STRING
           EXIT.

       FORMAT-BY.
           STRING POSTNR OF ADDRESSE OF KUNDE-REKORD DELIMITED BY SIZE
                  " " BY-X OF ADDRESSE OF KUNDE-REKORD DELIMITED BY SIZE
                  INTO ADR-LINJE2
           END-STRING
           EXIT.

       SKRIV-KUNDE.
           MOVE SPACES TO OUTPUT-TEXT
           STRING "Kunde-ID: " KUNDE-ID OF KUNDE-REKORD
                   DELIMITED BY SIZE
                  " | Navn: " FULDT-NAVN DELIMITED BY SIZE
                  INTO OUTPUT-TEXT
           END-STRING
           WRITE OUT-REKORD

           MOVE SPACES TO OUTPUT-TEXT
           STRING "Adresse: " ADR-LINJE1 DELIMITED BY SIZE
                  ", " ADR-LINJE2 DELIMITED BY SIZE
                  INTO OUTPUT-TEXT
           END-STRING
           WRITE OUT-REKORD

           MOVE SPACES TO OUTPUT-TEXT
           STRING "Tlf: " TELEFON OF KONTAKTINFO OF KUNDE-REKORD
                   DELIMITED BY SIZE
                  " | Email: " EMAIL OF KONTAKTINFO OF KUNDE-REKORD
                   DELIMITED BY SIZE
                  INTO OUTPUT-TEXT
           END-STRING
           WRITE OUT-REKORD
           EXIT.

       MATCH-KONTI.
           PERFORM VARYING IX-KONTI FROM 1 BY 1 UNTIL IX-KONTI >=
```

```
        KONTO-COUNT
            IF KUNDE-ID OF KONTO-ARRAY(IX-KONTI) = KUNDE-ID OF
                KUNDE-REKORD
                 MOVE SPACES TO OUTPUT-TEXT
                 STRING "   Konto-ID: " KONTO-ID OF
                        KONTO-ARRAY(IX-KONTI) DELIMITED BY SIZE
                        " | Type: " KONTO-TYPE OF
                        KONTO-ARRAY(IX-KONTI) DELIMITED BY SIZE
                        " | Saldo: " BALANCE OF
                        KONTO-ARRAY(IX-KONTI) DELIMITED BY SIZE
                        " " VALUTA-KD OF
                         KONTO-ARRAY(IX-KONTI) DELIMITED BY SIZE
                        INTO OUTPUT-TEXT
                 END-STRING
                 WRITE OUT-REKORD
            END-IF
        END-PERFORM
        EXIT.
```