

Answers to Exercises

Exercise 1

```
DROP PROGRAM explorer_23_exercise_1 GO
CREATE PROGRAM explorer_23_exercise_1

!prompts
PROMPT "Output to File/Printer/MINE" = MINE,
!challenge steps
    "Enter A Last Name" = "*",
    "Enter A First Name" = "*"

!report prolog
;Request HNAM sign-on when executed from CCL on host
IF (VALIDATE(IsOdbc, 0) = 0) EXECUTE CCLSECLOGIN ENDIF

!set maximum execute time for query/report
SET MaxSecs = 0
IF (VALIDATE(IsOdbc, 0) = 1) SET MaxSecs = 15 ENDIF

!fields
SELECT   INTO $1
    P.NAME_FULL_FORMATTED,
    E.ENCNTR_ID,
    O.ORDER_MNEMONIC,
    PA.ALIAS

!tables
FROM PERSON P,
     ENCOUNTER E,
     ORDERS O,
     PERSON_ALIAS PA

!qualifications
PLAN P WHERE P.PERSON_ID > 0
!challenge steps
                AND P.NAME_LAST_KEY = PATSTRING(CNVTUPPER($2))
                AND P.NAME_FIRST_KEY = PATSTRING(CNVTUPPER($3))
JOIN E WHERE E.PERSON_ID = P.PERSON_ID
JOIN O WHERE O.ENCNTR_ID = E.ENCNTR_ID
JOIN PA WHERE PA.PERSON_ID = P.PERSON_ID

!control options
WITH MAXREC = 1000, TIME = VALUE( MaxSecs ), NOHEADING, FORMAT= VARIABLE
END
GO
```

Exercise 2

```
DROP PROGRAM explorer23_class_ex2 GO
CREATE PROGRAM explorer23_class_ex2

!prompts
PROMPT "Output to File/Printer/MINE" = MINE

!report prolog
;Request HNAM sign-on when executed from CCL on host
IF (VALIDATE(IsOdbc, 0) = 0) EXECUTE CCLSECLOGIN ENDIF
```

```

!challenge steps
DECLARE SSN_VAR = F8
SET SSN_VAR = UAR_GET_CODE_BY("MEANING", 4, "SSN")

!set maximum execute time for query/report
SET MaxSecs = 0
IF (VALIDATE(IsOdbc, 0) = 1) SET MaxSecs = 15 ENDIF

!fields
SELECT INTO $1
    P.NAME_FULL_FORMATTED,
    PA.ALIAS,
    PA_PERSON_ALIAS_TYPE_DISP =UAR_GET_CODE_DISPLAY(PA.PERSON_ALIAS_TYPE_CD),
    PA_PERSON_ALIAS_TYPE_CDF = UAR_GET_CODE_MEANING( PA.PERSON_ALIAS_TYPE_CD )

!tables
FROM PERSON P,
     PERSON_ALIAS PA

!qualifications
PLAN P
JOIN PA WHERE OUTERJOIN(P.PERSON_ID) = PA.PERSON_ID
!challenge step
        AND PA.PERSON_ALIAS_TYPE_CD = OUTERJOIN(SSN_VAR)

!control options
WITH MAXREC = 100, TIME = VALUE( MaxSecs ), FORMAT, SKIPREPORT= 1
END
GO

```

Exercise 3

```

DROP PROGRAM explorer23_class_ex3 GO
CREATE PROGRAM explorer23_class_ex3

!prompts
PROMPT "Output to File/Printer/MINE" = MINE

!report prolog
;Request HNAM sign-on when executed from CCL on host
IF (VALIDATE(IsOdbc, 0) = 0) EXECUTE CCLSECLOGIN ENDIF

!set maximum execute time for query/report
SET MaxSecs = 0
IF (VALIDATE(IsOdbc, 0) = 1) SET MaxSecs = 15 ENDIF

!fields
SELECT INTO $1
    P.NAME_FULL_FORMATTED,
    O.ORDER_MNEMONIC,
    OC.LONG_TEXT_ID,
    !challenge step
    LONG_TEXT = SUBSTRING( 1, 1000, L.LONG_TEXT )

!tables
FROM PERSON P,
     ORDERS O,
     ORDER_COMMENT OC,
     !challenge step
     LONG_TEXT L

```

```

!qualifications
PLAN P WHERE P.PERSON_ID > 0
JOIN O WHERE P.PERSON_ID = O.PERSON_ID AND O.ORDER_ID > 0
JOIN OC WHERE outerjoin( O.ORDER_ID) = OC.ORDER_ID
!challenge step
JOIN L WHERE outerjoin(OC.LONG_TEXT_ID) = L.LONG_TEXT_ID

!control options
WITH MAXREC = 100, TIME = VALUE( MaxSecs ), FORMAT, SKIPREPORT= 1

END
GO

```

Exercise 4

```

DROP PROGRAM explorer_23_ex_4 GO
CREATE PROGRAM explorer_23_ex_4

!prompts
PROMPT "Output to File/Printer/MINE" = MINE

!report prolog
;Request HNAM sign-on when executed from CCL on host
IF (VALIDATE(IsOdbc, 0) = 0) EXECUTE CCLSECLOGIN ENDIF

SET MaxSecs = 0
IF (VALIDATE(IsOdbc, 0) = 1) SET MaxSecs = 15 ENDIF
!fields
SELECT INTO $1
    NAME = SUBSTRING(1,20,P.NAME_FULL_FORMATTED),
    E.ENCNTR_TYPE_CLASS_CD,
    E.ENCNTR_TYPE_CLASS_CDF = UAR_GET_CODE_MEANING( E.ENCNTR_TYPE_CLASS_CD )

!tables
FROM PERSON P,
     ENCOUNTER E

!qualifications
PLAN P WHERE P.PERSON_ID > 0
JOIN E WHERE E.PERSON_ID = P.PERSON_ID AND
        NOT EXISTS (SELECT O.ENCNTR_ID FROM ORDERS O
                     WHERE O.ENCNTR_ID = E.ENCNTR_ID)

!control options
WITH MAXREC = 100, TIME = VALUE( MaxSecs ), FORMAT, SKIPREPORT= 1
END
GO

```

Exercise 5

```

DROP PROGRAM explorer_23_ex_5 GO
CREATE PROGRAM explorer_23_ex_5

!prompts
PROMPT "Output to File/Printer/MINE" = MINE

!report prolog
;Request HNAM sign-on when executed from CCL on host
IF (VALIDATE(IsOdbc, 0) = 0) EXECUTE CCLSECLOGIN ENDIF

```

```

DECLARE MRN_VAR = F8
SET MRN_VAR = UAR_GET_CODE_BY("MEANING", 4, "MRN")

!set maximum execute time for query/report
SET MaxSecs = 0
IF (VALIDATE(IsOdbc, 0) = 1) SET MaxSecs = 15 ENDIF
!fields
SELECT INTO $1
    P.PERSON_ID,
    P.NAME_LAST,
    A.ADDRESS_ID,
    ADDR = SUBSTRING(1,20,A.STREET_ADDR)

!tables
FROM PERSON P,
     ADDRESS A

!qualifications
PLAN P WHERE P.PERSON_ID>0 AND
           NOT EXISTS (SELECT PA.PERSON_ID FROM PERSON_ALIAS PA
                         WHERE PA.PERSON_ID = P.PERSON_ID
                           AND PA.PERSON_ALIAS_TYPE_CD = MRN_VAR)
JOIN A WHERE A.PARENT_ENTITY_ID = P.PERSON_ID AND
           A.PARENT_ENTITY_NAME = "PERSON"

!control options
WITH MAXREC = 100, TIME = VALUE( MaxSecs ), FORMAT, SKIPREPORT= 1
END
GO

```

Exercise 6

```

DROP PROGRAM explorer_23_ex_6 GO
CREATE PROGRAM explorer_23_ex_6

!prompts
PROMPT "Output to File/Printer/MINE" = MINE

!report prolog
;Request HNAM sign-on when executed from CCL on host
IF (VALIDATE(IsOdbc, 0) = 0) EXECUTE CCLSECLOGIN ENDIF

!set maximum execute time for query/report
SET MaxSecs = 0
IF (VALIDATE(IsOdbc, 0) = 1) SET MaxSecs = 15 ENDIF

!fields
SELECT INTO $1
    P.NAME_FULL_FORMATTED,
    P_SEX_CDF = UAR_GET_CODE_MEANING( P.SEX_CD ),
    P.SEX_CD,
    P.UPDT_DT_TM,
    DATE_COMPARE = datatetimecmp( cnvtdatetime( curdate,0), P.UPDT_DT_TM )

!tables
FROM PERSON P

!qualifications
WHERE P.SEX_CD > 0

!Sorting

```

```
ORDER BY      P_SEX_CDF
```

```
Head Report
```

```
  ROW 1 COL 53 "Class Exercise 6 for Explorer 23"  
  ROW 2 COL 9 "Date :"  
  ROW 2 COL 17 curdate  
  ROW 3 COL 9 "Time :"  
  ROW 3 COL 17 curtime  
  ROW + 2
```

```
Head P_SEX_CDF
```

```
  COL 13  "SEX ="  
  COL 21  P_SEX_CD  
  COL 37  P_SEX_CDF  
  ROW + 2
```

```
Detail
```

```
  NAME_FULL_FORMATTED1 = SUBSTRING( 1, 20, P.NAME_FULL_FORMATTED ),  
  COL 5  NAME_FULL_FORMATTED1  
  COL 33  DATE_COMPARE  
  COL 53  P.UPDT_DT_TM  
  COL 65  IF ( DATE_COMPARE >365 )  
           "That was over a year ago!"  
  ENDIF  
  ROW + 1
```

```
Foot P_SEX_CDF
```

```
  ROW + 1  
  COL 5  "Total number of people with this sex code:"  
  COL 53  count( P.SEX_CD) ;L"  
  ROW + 1  
  COL 5  "Average number of days since the record was updated:"  
  COL 65  avg( DATE_COMPARE where p.updt_cnt >0) ;L"  
  ROW + 1  
  COL 5  "The oldest update was made:"  
  COL 33  max( DATE_COMPARE)  
  COL 53  "days ago."  
  ROW + 1  
  COL 5  "The newest update made:"  
  COL 29  min( DATE_COMPARE)  
  COL 49  "days ago."  
  ROW + 2
```

```
Foot Report
```

```
  ROW + 1  
  COL 13  "Total number of records for this report:"  
  COL 53  count( P.SEX_CD) ;L"  
  ROW + 1  
  COL 13  "The average number of days since this report was updated:"  
  COL 69  avg( DATE_COMPARE where p.updt_cnt >0) ;L"  
  ROW + 1  
  COL 13  "The oldest update was made:"  
  COL 41  max( DATE_COMPARE)  
  COL 65  "days ago."  
  ROW + 1  
  COL 13  "The newest update was made:"  
  COL 41  min( DATE_COMPARE)  
  COL 65  "days ago."
```

```
!control options
```

```
WITH MAXREC = 100, TIME = VALUE( MaxSecs ), NOHEADING, FORMAT= VARIABLE  
END  
GO
```

Exercise 7

No new source code is created for exercise 7.

The following answers are for HNAM Explorer 3

Exercise 8

```
DROP PROGRAM explorer_23_ex9 GO
CREATE PROGRAM explorer23_class_ex11

!prompts
PROMPT "Output to File/Printer/MINE" = MINE

!report prolog
;Request HNAM sign-on when executed from CCL on host
IF (VALIDATE(IsOdbc, 0) = 0) EXECUTE CCLSECLOGIN ENDIF

;if necessary free the record structure
free record person

;define the record structure
record person (
    1 qual [*]
2 person_id = f8
2 name = vc )

;set maximum execute time for query/report
SET MaxSecs = 0
IF (VALIDATE(IsOdbc, 0) = 1) SET MaxSecs = 15 ENDIF

!fields
SELECT   INTO $1
        P.PERSON_ID,
        NAME = P.NAME_FULL_FORMATTED

!tables
FROM    PERSON P

!qualifications
WHERE   P.PERSON_ID > 0

Head Report
    CNT = 0
    CNTX = 0
    STAT = ALTERLIST(PERSON->QUAL,10)

Detail
    CNT = CNT +1
    IF ( MOD(CNT,10) = 1 AND CNT != 1 )
        STAT = ALTERLIST(PERSON->QUAL, CNT +9)
    ENDIF
    PERSON->QUAL[CNT].PERSON_ID = P.PERSON_ID
    PERSON->QUAL[CNT].NAME = NAME

Foot Report
    STAT = ALTERLIST(PERSON->QUAL, CNT)
    FOR(CNTX = 1 TO CNT)
        COL 10
        PERSON->QUAL[CNTX].PERSON_ID
```

```

        COL +2
PERSON->QUAL [CNTX] .NAME
        ROW +1
ENDFOR

!control options
WITH MAXREC = 100, TIME = VALUE( MaxSecs ), NOHEADING, FORMAT= VARIABLE
END
GO

Exercise 9
DROP PROGRAM explorer_23_ex_9 GO
CREATE PROGRAM explorer_23_ex_9

!prompts
PROMPT "Output to File/Printer/MINE" = MINE

!report prolog
;Request HNAM sign-on when executed from CCL on host
IF (VALIDATE(IsOdbc, 0) = 0) EXECUTE CCLSECLOGIN ENDIF

; Defining record structure
free record person
record person(
    1 list [*]
        2 person_id = f8
        2 street      = c50 )

select into "NL:"
    a.parent_entity_id,
    a.street_addr
from address a
where a.parent_entity_name = "PERSON" and
    a.street_addr > "1"

head report
    cnt = 0

detail
    ; Allocate space in memory
    cnt = cnt +1
    if(mod(cnt,10) = 1)
        stat = alterlist(person->list, cnt+9)
    endif
    ; Loading record structure
    person->list[cnt].person_id = a.parent_entity_id
    person->list[cnt].street = substring(1,50,a.street_addr)

foot report
    stat = alterlist(person->list, cnt)
with maxrec = 200

!set maximum execute time for query/report
SET MaxSecs = 0
IF (VALIDATE(IsOdbc, 0) = 1) SET MaxSecs = 15 ENDIF
!fields
SELECT   INTO $1
        P.NAME_FULL_FORMATTED

!tables
FROM    PERSON  P,

```

```

        ( DUMMYT  D1 WITH SEQ = VALUE(SIZE(PERSON->LIST,5)) )

!qualifications
PLAN D1
JOIN P WHERE P.PERSON_ID = PERSON->LIST[D1.SEQ].PERSON_ID

Detail
      NAME_FULL_FORMATTED1 = SUBSTRING( 1, 50, P.NAME_FULL_FORMATTED ),
      COL 5  NAME_FULL_FORMATTED1
      COL +2 PERSON->LIST[D1.SEQ].PERSON_ID
      COL +2 PERSON->LIST[D1.SEQ].STREET
      ROW + 1

!control options
WITH MAXREC = 100, TIME = VALUE( MaxSecs ), NOHEADING, FORMAT= VARIABLE

END
GO

```

Exercise 10

```

DROP PROGRAM explorer_23_ex_10 GO
CREATE PROGRAM explorer_23_ex_10

!prompts
PROMPT "Output to File/Printer/MINE" = MINE

!report prolog
;Request HNAM sign-on when executed from CCL on host
IF (VALIDATE(IsOdbc, 0) = 0) EXECUTE CCLSECLOGIN ENDIF

free record per_ord

record per_ord (
    1 name = c25
    1 orders[*]
        2 id = f8
        2 mne = c25)

!set maximum execute time for query/report
SET MaxSecs = 0
IF (VALIDATE(IsOdbc, 0) = 1) SET MaxSecs = 60 ENDIF

!fields
SELECT   INTO $1
    P.PERSON_ID,
    P.NAME_FULL_FORMATTED,
    O.ORDER_ID,
    O.ORDER_MNEMONIC

!tables
FROM    PERSON P,
        ORDERS O

!qualifications
plan p where p.person_id = 210
JOIN o WHERE p.person_id = o.person_id

!Sorting
ORDER BY      P.PERSON_ID,
              O.ORDER_ID

Head Report

```

```

        cnt = 0
        cntx = 0
        stat = alterlist(per_ord->orders,10)

Head P.PERSON_ID
    per_ord->name = substring(1,25, p.name_full_formatted)
    ROW + 0

Detail
    cnt = cnt+1
    if(mod(cnt,10) = 1 and cnt != 1)
        stat = alterlist(per_ord->orders,cnt+10)
    endif
        per_ord->orders[cnt]->id = o.order_id
        per_ord->orders[cnt]->mne = substring(1,25,o.order_mnemonic)

Foot P.PERSON_ID
    ROW + 0

Foot Report
    stat = alterlist(per_ord->orders,cnt)
    col 0 per_ord->name
    row +1
    for (cntx = 1 to cnt)
        col 10 per_ord->orders[cntx]->id
        col +2 per_ord->orders[cntx]->mne
        row +1
    endfor

!control options
WITH MAXREC = 20, TIME = VALUE( MaxSecs ), NOHEADING, FORMAT= VARIABLE

END
GO

```

Exercise 11

```

DROP PROGRAM explorer_23_ex_11 GO
CREATE PROGRAM explorer_23_ex_11

!prompts
PROMPT "Output to File/Printer/MINE" = MINE

!report prolog
;Request HNAM sign-on when executed from CCL on host
IF (VALIDATE(IsOdbc, 0) = 0) EXECUTE CCLSECLOGIN ENDIF

free record per_ord

record per_ord (
    1 person[*]
    2 name      = c25
    2 orders[*]
        3 id       = f8
        3 mne      = c25  )

!set maximum execute time for query/report
SET MaxSecs = 0
IF (VALIDATE(IsOdbc, 0) = 1) SET MaxSecs = 80 ENDIF
!fields
SELECT   INTO $1
    P.PERSON_ID,

```

```

P.NAME_FULL_FORMATTED,
O.ORDER_ID,
O.ORDER_MNEMONIC

!tables
FROM PERSON P,
     ORDERS O

!qualifications
plan p where p.person_id between 150 and 250
JOIN o WHERE p.person_id = o.person_id

!Sorting
ORDER BY P.PERSON_ID,
          O.ORDER_ID

Head Report
cnt = 0
cntx = 0
cntp = 0
cntpx = 0
cnto = 0

stat = alterlist(per_ord->person,10)

Head P.PERSON_ID
cntp = cntp+1
if(mod(cntp,10) = 1 and cntp != 1)
    stat = alterlist(per_ord->person,cntp+9)
endif
per_ord->person[cntp]->name = substring(1,25, p.name_full_formatted)
;initialize the orders segment and cnt variable
cnt = 0
stat = alterlist(per_ord->person[cntp]->orders,cnt+10)
ROW + 0

Detail
cnt = cnt+1
if(mod(cnt,10) = 1 and cnt != 1)
    stat = alterlist(per_ord->person[cntp]->orders,cnt+10)
endif
per_ord->person[cntp]->orders[cnt]->id = o.order_id
per_ord->person[cntp]->orders[cnt]->mne =
    substring(1,25,o.order_mnemonic)

Foot P.PERSON_ID
stat = alterlist(per_ord->person[cntp]->orders,cnt)
ROW + 0

Foot Report
stat = alterlist(per_ord->person,cntp)
for(cntpx = 1 to cntp)
    col 0 per_ord->person[cntp]->name
    cnto = size(per_ord->person[cntp]->orders,5)
    row +1
    for (cntx = 1 to cnto)
        col 10 per_ord->person[cntp]->orders[cntx]->id
        col +2 per_ord->person[cntp]->orders[cntx]->mne
        row +1
    endfor
endfor

```

```
!control options
WITH MAXREC = 20, TIME = VALUE( MaxSecs ), NOHEADING, FORMAT= VARIABLE
```

```
END
GO
```

Exercise 12

```
DROP PROGRAM explorer23_class_ex12 GO
CREATE PROGRAM explorer23_class_ex12

!prompts
PROMPT "Output to File/Printer/MINE" = MINE

!report prolog
;Request HNAM sign-on when executed from CCL on host
IF (VALIDATE(IsOdbc, 0) = 0) EXECUTE CCLSECLOGIN ENDIF

SELECT INTO TABLE CCLCUSTTABLE
    P.PERSON_ID,
    P.NAME_LAST_KEY
FROM PERSON P
WHERE P.NAME_LAST_KEY = "R*"
ORDER P.PERSON_ID
WITH MAXREC = 100,
    ORGANIZATION = I

!set maximum execute time for query/report
SET MaxSecs = 0
IF (VALIDATE(IsOdbc, 0) = 1) SET MaxSecs = 15 ENDIF

!challenge steps
!fields
SELECT INTO $1
    O.ORDER_MNEMONIC,
    C.PERSON_ID,
    C.NAME_LAST_KEY

!tables
FROM ORDERS O,
    CCLCUSTTABLE C

!qualifications
PLAN O
JOIN C WHERE O.PERSON_ID = C.PERSON_ID

!control options
WITH MAXREC = 100, TIME = VALUE( MaxSecs ), FORMAT, SKIPREPORT= 1

END
GO
```

Exercise 13

```
DROP PROGRAM explorer23_class_ex13 GO
CREATE PROGRAM explorer23_class_ex13
```

```
!prompts
PROMPT "Output to File/Printer/MINE" = MINE
```

```

!report prolog
;Request HNAM sign-on when executed from CCL on host
IF (VALIDATE(IsOdbc, 0) = 0) EXECUTE CCLSECLOGIN ENDIF

DECLARE MRN_VAR = F8
SET MRN_VAR = UAR_GET_CODE_BY("MEANING", 4, "MRN")

SET MaxSecs = 0
IF (VALIDATE(IsOdbc, 0) = 1) SET MaxSecs = 15 ENDIF

!fields
SELECT INTO $1
    P.PERSON_ID,
    NAME = SUBSTRING(1,20,P.NAME_FULL_FORMATTED),
    SIDE = DECODE(A.SEQ,"ADDR ", PA.SEQ, "ALIAS"),
    A.ADDRESS_ID,
    ADDR = SUBSTRING(1,20,A.STREET_ADDR),
    PA.PERSON_ALIAS_ID,
    ALIAS = SUBSTRING(1,20,PA.ALIAS)

!tables
FROM PERSON P,
      ADDRESS A,
      PERSON_ALIAS PA,
      DUMMYT D1,
      DUMMYT D2

!qualifications
PLAN P WHERE P.PERSON_ID>0
JOIN D1
JOIN (A WHERE A.PARENT_ENTITY_ID = P.PERSON_ID AND
                  A.PARENT_ENTITY_NAME = "PERSON")
ORJOIN D2
JOIN (PA WHERE PA.PERSON_ID = P.PERSON_ID )

!control options
WITH MAXREC = 1000, TIME = VALUE( MaxSecs ), FORMAT, SKIPREPORT= 1

END
GO

```

Exercise 14

```

DROP PROGRAM explorer23_class_ex7 GO
CREATE PROGRAM explorer23_class_ex7

!prompts
PROMPT "Output to File/Printer/MINE" = MINE

!report prolog
;Request HNAM sign-on when executed from CCL on host
IF (VALIDATE(IsOdbc, 0) = 0) EXECUTE CCLSECLOGIN ENDIF

SET MaxSecs = 0
IF (VALIDATE(IsOdbc, 0) = 1) SET MaxSecs = 15 ENDIF

!fields
SELECT INTO $1
    E.ENCNTR_ID,
    E_ENCNTR_TYPE_CLASS_DISP = UAR_GET_CODE_DISPLAY(E.ENCNTR_TYPE_CLASS_CD ),
    SIDE = decode(O.SEQ, "ORD", EP.SEQ, "EPR"),
    O.ORDER_ID,

```

```

O.ORDER_MNEMONIC,
EP.ENCNTR_PRSNL_R_DISP = UAR_GET_CODE_DISPLAY( EP.ENCNTR_PRSNL_R_CD ),
P.NAME_FULL_FORMATTED

!tables
FROM ENCOUNTER E,
      ORDERS O,
      ENCNTR_PRSNL_RELTN EP,
      PRSNL P,
      DUMMYT D1,
      DUMMYT D2

!qualifications
PLAN E WHERE E.ENCNTR_ID != 0.0
JOIN D1
JOIN (O WHERE E.ENCNTR_ID = O.ENCNTR_ID)
ORJOIN D2
JOIN (EP WHERE E.ENCNTR_ID = EP.ENCNTR_ID)
JOIN P WHERE EP.PRSNL_PERSON_ID = P.PERSON_ID
ORDER BY E.ENCNTR_ID,
         SIDE DESC

!control options
WITH MAXREC = 100, TIME = VALUE( MaxSecs ), FORMAT, SKIPREPORT= 1

END
GO

```