

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_ENCENTR_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 = datetimcmp( 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[CNTRY].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 HNAME 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[cntpx]->name
        cnto = size(per_ord->person[cntpx]->orders,5)
        row +1
        for (cntx = 1 to cnto)
            col 10 per_ord->person[cntpx]->orders[cntx]->id
            col +2 per_ord->person[cntpx]->orders[cntx]->mne
            row +1
        endfor
    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_ENCENR_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_ENCINTR_PRSNL_R_DISP = UAR_GET_CODE_DISPLAY( EP.ENCNTR_PRSNL_R_CD ),
P.NAME_FULL_FORMATTED

!tables
FROM   ENCOUNTER  E,
       ORDERS     O,
       ENCINTR_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

```