**OPTIONAL HOMEWORK 2**

Program Name: **ZN006\_OPTIONAL2**

CLASS TRAINCAR DEFINITION.  
  PUBLIC SECTION.  
    CLASS-DATA:  
      NUMCARS TYPE I VALUE 0 READ-ONLY.  
    DATA:  
      IDNUMBER TYPE N LENGTH 4 READ-ONLY,  
      YEARBOUGHT TYPE N LENGTH 4 READ-ONLY,  
      COLOR TYPE C LENGTH 15 READ-ONLY,  
      WEIGHT TYPE P LENGTH 8 DECIMALS 2 READ-ONLY.  
    METHODS:  
      CONSTRUCTOR  
        IMPORTING IDNUMBER TYPE N DEFAULT '1234'  
                  YEARBOUGHT TYPE N DEFAULT '2000'  
                  COLOR TYPE C DEFAULT 'Black'  
                  WEIGHT TYPE P DEFAULT '100000',  
      SETIDNUMBER  
        IMPORTING IDNUMBER TYPE N,  
      SETYEARBOUGHT  
        IMPORTING YEARBOUGHT TYPE N,  
      SETCOLOR  
        IMPORTING COLOR TYPE C,  
      SETWEIGHT  
        IMPORTING WEIGHT TYPE P,  
      SHOWCAR.  
ENDCLASS.  
  
CLASS TRAINCAR IMPLEMENTATION.  
  METHOD CONSTRUCTOR.  
    ME->IDNUMBER = IDNUMBER.  
    ME->YEARBOUGHT = YEARBOUGHT.  
    ME->COLOR = COLOR.  
    ME->WEIGHT = WEIGHT.  
    NUMCARS = NUMCARS + 1.  
  ENDMETHOD.  
  
  METHOD SETIDNUMBER.  
    ME->IDNUMBER = IDNUMBER.  
  ENDMETHOD.  
  
  METHOD SETYEARBOUGHT.  
     ME->YEARBOUGHT = YEARBOUGHT.  
  ENDMETHOD.  
  
  METHOD SETCOLOR.  
    ME->COLOR = COLOR.  
  ENDMETHOD.  
  
  METHOD SETWEIGHT.  
    ME->WEIGHT = WEIGHT.  
  ENDMETHOD.  
  
  
  METHOD SHOWCAR.  
    WRITE: / 'Car ID:', 25 IDNUMBER.  
    WRITE: / 'Year Bought:', 25 YEARBOUGHT.  
    WRITE: / 'Color:', 25 COLOR.  
    WRITE: / 'Weight:', 25(\*) WEIGHT NO-GAP, 'lbs'.  
    WRITE: / 'Car Numbers:', 25(\*) NUMCARS.  
  ENDMETHOD.  
  
ENDCLASS.  
  
CLASS PASSENGERCAR DEFINITION INHERITING FROM TRAINCAR.  
  PUBLIC SECTION.  
    DATA: NUMSEATSAVAILABLE TYPE I READ-ONLY,  
          NUMSEATSFILLED TYPE I READ-ONLY,  
          AIRCONDITIONED TYPE C LENGTH 1 READ-ONLY,  
          BATHROOM TYPE C LENGTH 1 READ-ONLY.  
    METHODS:  
      CONSTRUCTOR  
        IMPORTING IDNUMBER TYPE N DEFAULT '7341'  
                  YEARBOUGHT TYPE N DEFAULT '2010'  
                  COLOR TYPE C DEFAULT 'Blue'  
                  WEIGHT TYPE P DEFAULT '100200'  
                  NUMSEATSAVAILABLE TYPE I OPTIONAL  
                  NUMSEATSFILLED TYPE I OPTIONAL  
                  AIRCONDITIONED TYPE C DEFAULT 'Y'  
                  BATHROOM TYPE C DEFAULT 'Y',  
      SETNUMSEATSAVAILABLE  
        IMPORTING NUMSEATSAVAILABLE TYPE I,  
      SETNUMSEATSFILLED  
        IMPORTING NUMSEATSFILLED TYPE I,  
      SETAIRCONDITIONED  
        IMPORTING AIRCONDITIONED TYPE C,  
      SETBATHROOM  
        IMPORTING BATHROOM TYPE C,  
      SHOWCAR REDEFINITION.  
  
ENDCLASS.  
  
CLASS PASSENGERCAR IMPLEMENTATION.  
  METHOD CONSTRUCTOR.  
    SUPER->CONSTRUCTOR( IDNUMBER = IDNUMBER YEARBOUGHT = YEARBOUGHT COLOR = COLOR WEIGHT = WEIGHT ).  
    ME->NUMSEATSAVAILABLE = NUMSEATSAVAILABLE.  
    ME->NUMSEATSFILLED = NUMSEATSFILLED.  
    ME->AIRCONDITIONED = AIRCONDITIONED.  
    ME->BATHROOM = BATHROOM.  
  ENDMETHOD.  
  
  METHOD SETNUMSEATSAVAILABLE.  
    ME->NUMSEATSAVAILABLE = NUMSEATSAVAILABLE.  
  ENDMETHOD.  
  
  METHOD SETNUMSEATSFILLED.  
    ME->NUMSEATSFILLED = NUMSEATSFILLED.  
  ENDMETHOD.  
  
  METHOD SETAIRCONDITIONED.  
    ME->AIRCONDITIONED = AIRCONDITIONED.  
  ENDMETHOD.  
  
  METHOD SETBATHROOM.  
    ME->BATHROOM = BATHROOM.  
  ENDMETHOD.  
  
  METHOD SHOWCAR.  
    SUPER->SHOWCAR( ).  
    WRITE: / 'No. of available seats:', 25(\*) NUMSEATSAVAILABLE.  
    WRITE: / 'No. of filled seats:', 25(\*) NUMSEATSFILLED.  
    WRITE: / 'Airconditioned?:', 25 AIRCONDITIONED.  
    WRITE: / 'Bathroom?:', 25 BATHROOM.  
  ENDMETHOD.  
ENDCLASS.  
  
CLASS TANKERCAR DEFINITION INHERITING FROM TRAINCAR.  
  PUBLIC SECTION.  
    DATA: FUELCAPACITY TYPE I READ-ONLY,  
          FUELWEIGHT TYPE P LENGTH 6 DECIMALS 2 READ-ONLY.  
    METHODS:  
      CONSTRUCTOR  
        IMPORTING IDNUMBER TYPE N DEFAULT '3272'  
                  YEARBOUGHT TYPE N DEFAULT '2005'  
                  COLOR TYPE C DEFAULT 'Grey'  
                  WEIGHT TYPE P DEFAULT '111200'  
                  FUELCAPACITY TYPE I DEFAULT 40  
                  FUELWEIGHT TYPE P OPTIONAL,  
      SETFUELCAPACITY  
        IMPORTING FUELCAPACITY TYPE I,  
      SETFUELWEIGHT  
        IMPORTING FUELWEIGHT TYPE I,  
      SHOWCAR REDEFINITION.  
  
ENDCLASS.  
  
CLASS TANKERCAR IMPLEMENTATION.  
  METHOD CONSTRUCTOR.  
    SUPER->CONSTRUCTOR( IDNUMBER = IDNUMBER YEARBOUGHT = YEARBOUGHT COLOR = COLOR WEIGHT = WEIGHT ).  
    ME->FUELCAPACITY = FUELCAPACITY.  
    ME->FUELWEIGHT = FUELWEIGHT.  
  ENDMETHOD.  
  
  METHOD SETFUELCAPACITY.  
    ME->FUELCAPACITY = FUELCAPACITY.  
  ENDMETHOD.  
  
  METHOD SETFUELWEIGHT.  
    ME->FUELWEIGHT = FUELWEIGHT.  
  ENDMETHOD.  
  
  METHOD SHOWCAR.  
    SUPER->SHOWCAR( ).  
    WRITE: / 'Fuel Capacity:', 25(\*) FUELCAPACITY NO-GAP, 'MPG'.  
    WRITE: / 'Fuel Weight:', 25(\*) FUELWEIGHT NO-GAP, 'lbs'.  
  ENDMETHOD.  
ENDCLASS.  
  
START-OF-SELECTION.  
DATA MYTRAINCAR1 TYPE REF TO TRAINCAR.  
CREATE OBJECT MYTRAINCAR1.  
MYTRAINCAR1->SHOWCAR( ).  
ULINE.  
DATA MYTRAINCAR2 TYPE REF TO TRAINCAR.  
CREATE OBJECT MYTRAINCAR2  
  EXPORTING IDNUMBER = '3572'  
            YEARBOUGHT = '1999'  
            COLOR = 'Brown'  
            WEIGHT = '191000'.  
MYTRAINCAR2->SHOWCAR( ).  
ULINE.  
DATA MYPASSENGERCAR1 TYPE REF TO PASSENGERCAR.  
CREATE OBJECT MYPASSENGERCAR1.  
MYPASSENGERCAR1->SHOWCAR( ).  
ULINE.  
DATA MYPASSENGERCAR2 TYPE REF TO PASSENGERCAR.  
CREATE OBJECT MYPASSENGERCAR2  
  EXPORTING IDNUMBER = '5327'  
            YEARBOUGHT = '2009'  
            COLOR = 'Yellow'  
            WEIGHT = '193050'  
            NUMSEATSAVAILABLE = 50  
            NUMSEATSFILLED = 40  
            AIRCONDITIONED = 'N'  
            BATHROOM = 'N'.  
MYPASSENGERCAR2->SHOWCAR( ).  
ULINE.  
DATA MYTANKERCAR1 TYPE REF TO TANKERCAR.  
CREATE OBJECT MYTANKERCAR1.  
MYTANKERCAR1->SHOWCAR( ).  
ULINE.  
DATA MYTANKERCAR2 TYPE REF TO TANKERCAR.  
CREATE OBJECT MYTANKERCAR2  
  EXPORTING IDNUMBER = '8343'  
            YEARBOUGHT = '1999'  
            COLOR = 'Green'  
            WEIGHT = '195500'  
            FUELCAPACITY = 35  
            FUELWEIGHT = 100.  
MYTANKERCAR2->SHOWCAR( ).



