Department of Information Technology

Higher Diploma in Software Engineering (IT114105)

(AY2021/2022)

ITP4512   Enterprise Software
ASSIGNMENT

Assignment Due Date: 23rd April 2022 (Saturday)

<u>ABAP Dictionary and ABAP Programming</u>

In this assignment, you are required to create a table with ABAP Dictionary; write two function modules; write a report program to insert records into the table; and write another report program to generate a report with selection option and retrieve data from the table. Complete these tasks with the VM server provided in lab exercises and capture appropriate screens as evidence of your work.

Part 1: Create table (15%)

Create a table with name ZASG_*yourname* (replace *yourname* with your name without space, max 11 characters) which consists of the following columns, using appropriate existing data elements:

Field	Key	Data Type	Length	DP	Short Description
MANDT	Yes	CLNT	3	0	Client
CARRID	Yes	CHAR	3	0	Airline Code
CARRNAME		CHAR	20	0	Airline Name
CONNID	Yes	NUMC	4	0	Flight Connection Number
FLTIME		INT4	10	0	Flight Time
FLDATE	Yes	DATS	8	0	Flight Date
CUSTOMID	Yes	NUMC	8	0	Customer Number
LUGGWEIGHT		QUAN	8	4	Weight of Luggage
WUNIT		UNIT	3	0	Weight Unit
PASSNAME		CHAR	25	0	Name of the Passenger
H_FLAG		CHAR	1	0	General Flag
HKEARNING		CURR	15	2	Extra Earning Amount
CURRENCY		CUKY	5	0	Local Currency of Airline
PLANETYPE		CHAR	10	0	Plane Type

Hint: The order of the fields does not need to be the same as above.
Capture screens on tabs 'Delivery and Maintenance', 'Fields', 'Currency/Quantity Fields', and 'Technical Settings' after you have successfully activated the table.

Part 2: Function module to determine earning in HK dollar (15%)

Write an ABAP function module called Z_ *yourname* _FN1 (created in a separate function group Z_ *yourname* _GP) that perform the following:

1. Input: *currency* of TYPE CUKY,
          earning (in foreign currency) of TYPE CURR.
2. Output: *earning* in HK dollar of TYPE CURR.
3. Set the output value (*earning* in HK dollar) according to the following table:

Currency	Rate
US Dollar	7.8
Euro	8.4
Australian Dollar	5.2
Singapore Dollar	5.6
Japanese Yen	0.07

You should also raise an exception when the input currency is not one of the above.

Capture screens that show the source code and ALL test outputs of your function module.

Part 3: Function module to determine luggage weight in kilograms (10%)

Write an ABAP function module called Z_ *yourname* _FN2 (created in function group Z_ *yourname* _GP) that perform the following:

1. Input: *wtunit* of TYPE UNIT,
          lweight of TYPE QUAN.
2. Output: *lgweight* in Kilograms of TYPE QUAN.
3. Set the output value (: *lgweight* in Kilograms) according to the following rule:
   IF wtunit has value of 'KG'
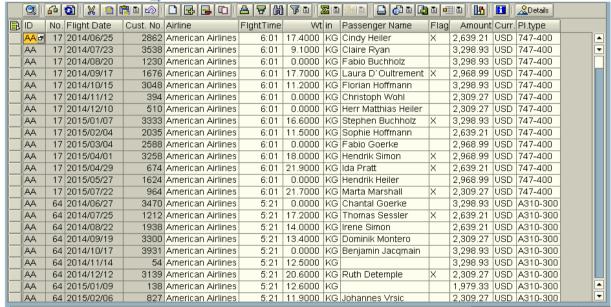   Set lgweight = lweight
   ELSE
       Set lgweight = lweight / 2.2

Capture screens that show the source code and ALL test outputs of your function module.
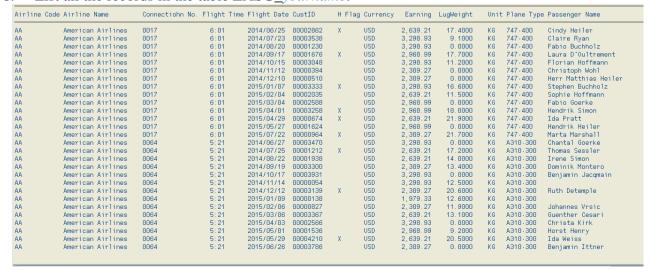
Part 4: Program to insert into the table ZASG_*yourname.* (20%)

Write an ABAP report program called Z_ *yourname* _UP that perform the following:
1. Define a structure of variables corresponding to the data structure of ZASG_*yourname*.
2. Read data from tables SCARR, SPFLI, SFLIGHT and SBOOK and retrieve appropriate data.
3. Declare a variable EARNING which value is calculated as follows:
   EARNING = SBOOK.LOCCURAM – SFLIGHT.PRICE
4. Use function module Z_ *yourname* _FN1 to calculate the earnings in HK dollar (HKEARNING). Display a message if the currency is not in the table in Part 2.
5. Use function module Z_ *yourname* _FN2 to calculate the luggage weight in kilograms (LGWEIGHT).
6. Check the values of Lgweight and fltime. Set the q_flag according to the following:
   A. **IF** lgweight is greater than 14
      OR fltime is greater than 11 hours,
         set the field h_flag to 'X'.
   B. **ELSE**, set it to ' '.
7. Insert into table ZASG_*yourname*.

ID	No.	Flight Date	Cust. No.	Airline	FlightTime	Wt	in	Passenger Name	Flag	Amount	Curr.	Pl.type
AA	17	2014/06/25	2862	American Airlines	6:01	17.4000	KG	Cindy Heiler	X	2,639.21	USD	747-400
AA	17	2014/07/23	3538	American Airlines	6:01	9.1000	KG	Claire Ryan		3,298.93	USD	747-400
AA	17	2014/08/20	1230	American Airlines	6:01	0.0000	KG	Fabio Buchholz		3,298.93	USD	747-400
AA	17	2014/09/17	1676	American Airlines	6:01	17.7000	KG	Laura D´Oultrement	X	2,968.99	USD	747-400
AA	17	2014/10/15	3048	American Airlines	6:01	11.2000	KG	Florian Hoffmann		3,298.93	USD	747-400
AA	17	2014/11/12	394	American Airlines	6:01	0.0000	KG	Christoph Wohl		2,309.27	USD	747-400
AA	17	2014/12/10	510	American Airlines	6:01	0.0000	KG	Herr Matthias Heiler		2,309.27	USD	747-400
AA	17	2015/01/07	3333	American Airlines	6:01	16.6000	KG	Stephen Buchholz	X	3,298.93	USD	747-400
AA	17	2015/02/04	2035	American Airlines	6:01	11.5000	KG	Sophie Hoffmann		2,639.21	USD	747-400
AA	17	2015/03/04	2588	American Airlines	6:01	0.0000	KG	Fabio Goerke		2,968.99	USD	747-400
AA	17	2015/04/01	3258	American Airlines	6:01	18.0000	KG	Hendrik Simon	X	2,968.99	USD	747-400
AA	17	2015/04/29	674	American Airlines	6:01	21.9000	KG	Ida Pratt	X	2,639.21	USD	747-400
AA	17	2015/05/27	1624	American Airlines	6:01	0.0000	KG	Hendrik Heiler		2,968.99	USD	747-400
AA	17	2015/07/22	964	American Airlines	6:01	21.7000	KG	Marta Marshall	X	2,309.27	USD	747-400
AA	64	2014/06/27	3470	American Airlines	5:21	0.0000	KG	Chantal Goerke		3,298.93	USD	A310-300
AA	64	2014/07/25	1212	American Airlines	5:21	17.2000	KG	Thomas Sessler	X	2,639.21	USD	A310-300
AA	64	2014/08/22	1938	American Airlines	5:21	14.0000	KG	Irene Simon		2,639.21	USD	A310-300
AA	64	2014/09/19	3300	American Airlines	5:21	13.4000	KG	Dominik Montero		2,309.27	USD	A310-300
AA	64	2014/10/17	3931	American Airlines	5:21	0.0000	KG	Benjamin Jacqmain		3,298.93	USD	A310-300
AA	64	2014/11/14	54	American Airlines	5:21	12.5000	KG			3,298.93	USD	A310-300
AA	64	2014/12/12	3139	American Airlines	5:21	20.6000	KG	Ruth Detemple	X	2,309.27	USD	A310-300
AA	64	2015/01/09	138	American Airlines	5:21	12.6000	KG			1,979.33	USD	A310-300
AA	64	2015/02/06	827	American Airlines	5:21	11.9000	KG	Johannes Vrsic		2,309.27	USD	A310-300

8. List all the records in the table ZASG_*yourname*.

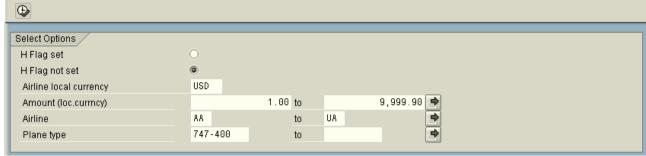| Airline Code	Airline Name	Connectiohn No.	Flight Time	Flight Date	CustID	H Flag	Currency	Earning	LugWeight	Unit	Plane Type	Passenger Name
AA	American Airlines	0017	6:01	2014/06/25	00002862	X	USD	2,639.21	17.4000	KG	747-400	Cindy Heiler
AA	American Airlines	0017	6:01	2014/07/23	00003538		USD	3,298.93	9.1000	KG	747-400	Claire Ryan
AA	American Airlines	0017	6:01	2014/08/20	00001230		USD	3,298.93	0.0000	KG	747-400	Fabio Buchholz
AA	American Airlines	0017	6:01	2014/09/17	00001676	X	USD	2,968.99	17.7000	KG	747-400	Laura D´Oultrement
AA	American Airlines	0017	6:01	2014/10/15	00003048		USD	3,298.93	11.2000	KG	747-400	Florian Hoffmann
AA	American Airlines	0017	6:01	2014/11/12	00000394		USD	2,309.27	0.0000	KG	747-400	Christoph Wohl
AA	American Airlines	0017	6:01	2014/12/10	00000510		USD	2,309.27	0.0000	KG	747-400	Herr Matthias Heiler
AA	American Airlines	0017	6:01	2015/01/07	00003333	X	USD	3,298.93	16.6000	KG	747-400	Stephen Buchholz
AA	American Airlines	0017	6:01	2015/02/04	00002035		USD	2,639.21	11.5000	KG	747-400	Sophie Hoffmann
AA	American Airlines	0017	6:01	2015/03/04	00002588		USD	2,968.99	0.0000	KG	747-400	Fabio Goerke
AA	American Airlines	0017	6:01	2015/04/01	00003258	X	USD	2,968.99	18.0000	KG	747-400	Hendrik Simon
AA	American Airlines	0017	6:01	2015/04/29	00000674	X	USD	2,639.21	21.9000	KG	747-400	Ida Pratt
AA	American Airlines	0017	6:01	2015/05/27	00001624		USD	2,968.99	0.0000	KG	747-400	Hendrik Heiler
AA	American Airlines	0017	6:01	2015/07/22	00000964	X	USD	2,309.27	21.7000	KG	747-400	Marta Marshall
AA	American Airlines	0064	5:21	2014/06/27	00003470		USD	3,298.93	0.0000	KG	A310-300	Chantal Goerke
AA	American Airlines	0064	5:21	2014/07/25	00001212	X	USD	2,639.21	17.2000	KG	A310-300	Thomas Sessler
AA	American Airlines	0064	5:21	2014/08/22	00001938		USD	2,639.21	14.0000	KG	A310-300	Irene Simon
AA	American Airlines	0064	5:21	2014/09/19	00003300		USD	2,309.27	13.4000	KG	A310-300	Dominik Montero
AA	American Airlines	0064	5:21	2014/10/17	00003931		USD	3,298.93	0.0000	KG	A310-300	Benjamin Jacqmain
AA	American Airlines	0064	5:21	2014/11/14	00000054		USD	3,298.93	12.5000	KG	A310-300	
AA	American Airlines	0064	5:21	2014/12/12	00003139	X	USD	2,309.27	20.6000	KG	A310-300	Ruth Detemple
AA	American Airlines	0064	5:21	2015/01/09	00000138		USD	1,979.33	12.6000	KG	A310-300	
AA	American Airlines	0064	5:21	2015/02/06	00000827		USD	2,309.27	11.9000	KG	A310-300	Johannes Vrsic
AA	American Airlines	0064	5:21	2015/03/06	00003367		USD	2,639.21	13.1000	KG	A310-300	Guenther Cesari
AA	American Airlines	0064	5:21	2015/04/03	00002566		USD	3,298.93	0.0000	KG	A310-300	Christa Kirk
AA	American Airlines	0064	5:21	2015/05/01	00001536		USD	2,968.99	9.2000	KG	A310-300	Horst Henry
AA	American Airlines	0064	5:21	2015/05/29	00004210	X	USD	2,639.21	20.5000	KG	A310-300	Ida Weiss
AA	American Airlines	0064	5:21	2015/06/26	00003786		USD	2,309.27	0.0000	KG	A310-300	Benjamin Ittner

Capture screens that show the source code, output of your program and the database contents.

Part 5: Program to select records from table ZASG_*yourname.* (20%)

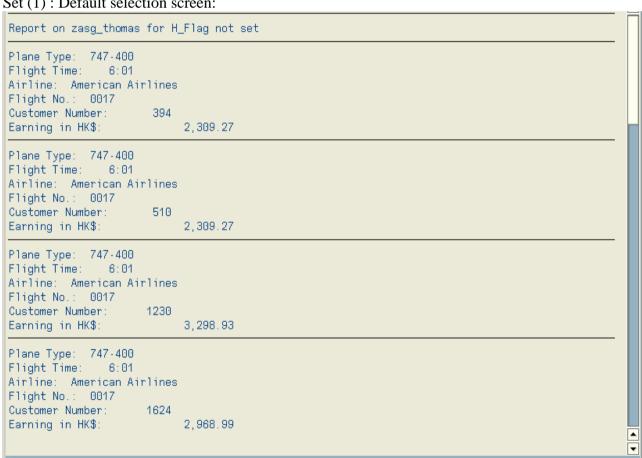Write an ABAP report program called Z_ *yourname* _DP that perform the following:
1. Display selection screen similar to the following for user to enter selection criteria:

Select Options		
H Flag set	○	
H Flag not set	◉	
Airline local currency	USD	
Amount (loc.currncy)	1.00 to	9,999.90 ➡
Airline	AA to	UA ➡
Plane type	747-400 to	➡

Note that 'H Flag set' and 'H Flag not set' are radio buttons that user can only select one choice and should have 'H Flag not set' chosen by default; **All other input fields should also display default values as shown.**

2. Select records from the table ZASG_*yourname* according to the user selection criteria and generate a report similar to the following (H Flag not set):
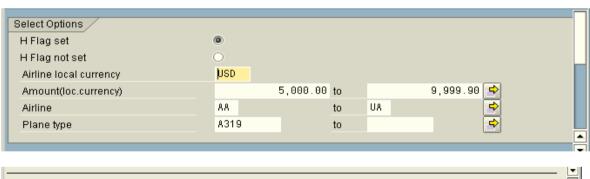
Set (1) : Default selection screen:

```
Report on zasg_thomas for H_Flag not set
_____

Plane Type:  747-400
Flight Time:    6:01
Airline:   American Airlines
Flight No.:   0017
Customer Number:      394
Earning in HK$:          2,309.27
_____

Plane Type:  747-400
Flight Time:    6:01
Airline:   American Airlines
Flight No.:   0017
Customer Number:      510
Earning in HK$:          2,309.27
_____

Plane Type:  747-400
Flight Time:    6:01
Airline:   American Airlines
Flight No.:   0017
Customer Number:      1230
Earning in HK$:          3,298.93
_____

Plane Type:  747-400
Flight Time:    6:01
Airline:   American Airlines
Flight No.:   0017
Customer Number:      1624
Earning in HK$:          2,968.99
```
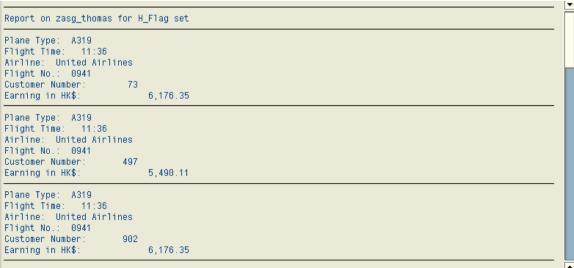
(Only first few records shown.)

Another set (2):

```
Select Options
  H Flag set                    ⦿
  H Flag not set                ○
  Airline local currency        USD
  Amount(loc.currency)                    1.00  to            9,999.90  ⇨
  Airline                       AA           to    UA                  ⇨
  Plane type                    747-400      to                        ⇨
```

```
Report on zasg_thomas for H_Flag set

Plane Type:  747-400
Flight Time:    6:01
Airline:  American Airlines
Flight No.:  0017
Customer Number:       674
Earning in HK$:           2,639.21

Plane Type:  747-400
Flight Time:    6:01
Airline:  American Airlines
Flight No.:  0017
Customer Number:       964
Earning in HK$:           2,309.27

Plane Type:  747-400
Flight Time:    6:01
Airline:  American Airlines
Flight No.:  0017
Customer Number:      1676
Earning in HK$:           2,968.99
```

(Only first few records shown.)

Another set (3):

```
Select Options
  H Flag set                    ⦿
  H Flag not set                ○
  Airline local currency        USD
  Amount(loc.currency)                 5,000.00  to            9,999.90  ⇨
  Airline                       AA           to    UA                  ⇨
  Plane type                    A319         to                        ⇨
```

```
Report on zasg_thomas for H_Flag set

Plane Type:  A319
Flight Time:   11:36
Airline:  United Airlines
Flight No.:  0941
Customer Number:        73
Earning in HK$:           6,176.35

Plane Type:  A319
Flight Time:   11:36
Airline:  United Airlines
Flight No.:  0941
Customer Number:       497
Earning in HK$:           5,490.11

Plane Type:  A319
Flight Time:   11:36
Airline:  United Airlines
Flight No.:  0941
Customer Number:       902
Earning in HK$:           6,176.35
```

(Only first few records shown.)

Another set (4):

(Complete report shown.)

Hint: You have to sort your internal table.

*Capture screens that show the source code and outputs of your program. **At least 8 outputs** (with different selection criteria) must be shown. You must include the **above 4 sets** of outputs.*

Instructions to Students

1. The weighting of this assignment is 20% of the whole module mark.

2. This assignment is an individual assignment and each student has to submit his/her own work. Plagiarism is a serious offence and any assignments that involve any plagiarism will be given ZERO marks. The award of Zero marks will apply to all parties, regardless of whether or not a student is the original author or the plagiarist. Further disciplinary action will follow.

3. All work is to be submitted to moodle.vtc.edu.hk by *23rd April 2022*.

4. You are required to hand in all screen captures by print screen and pasting them onto this document in appropriate areas as instructed above and submit this document to moodle.

5. Marks:

Table Creation	15%
Function Module1	15%
Function Module2	10%
Insertion Program	20%
Selection Program	20%
Checking Select and Insert Status	5%
Use of Messages, Text Symbols & Selection Tests	5%
Use of Internal Table in Selection Program	3%
Appropriate testing screens captured	2%
Coding Standard and Documentation	5%

- End of Assignment Instruction -