Solution

Q.1 Determine if a letter is a vowel or a consonant

```
"""
# Determine if a letter is a vowel or a consonant.
#

# Read a letter from the user
letter = input("Enter a letter of the alphabet: ")

# Classify the letter and report the result
if letter == "a" or letter == "e" or \
   letter == "i" or letter == "o" or \
   letter == "u":
  print("It's a vowel.")
elif letter == "y":
  print("Sometimes it's a vowel... Sometimes it's a consonant.")
else:
  print("It's a consonant.")
```

This version of the program only works for lowercase letters. You can add support for uppercase letters by including additional comparisons that follow the same pattern.

Q.2 Convert from a letter grade to a number of grade ponts

```
##
# Convert from a letter grade to a number of grade points.
#
A       = 4.0
A_MINUS = 3.7
B_PLUS  = 3.3
B       = 3.0
B_MINUS = 2.7
C_PLUS  = 2.3
C       = 2.0
C_MINUS = 1.7
D_PLUS  = 1.3
D       = 1.0
F       = 0
INVALID = -1
```

```
# Read the letter grade from the user
letter = input("Enter a letter grade: ")
letter = letter.upper()
```

The statement `letter = letter.upper()` converts any lowercase letters entered by the user into uppercase letters, storing the result back into the same variable. Including this statement allows the program to work with lowercase letters without including them in the conditions of the `if` and `elif` statements.

```
# Convert from a letter grade to a number of grade points using -1 grade points as a sentinel
# value indicating invalid input
if letter == "A+" or letter == "A":
  gp = A
elif letter == "A-":
  gp = A_MINUS
elif letter == "B+":
  gp = B_PLUS
elif letter == "B":
  gp = B
elif letter == "B-":
  gp = B_MINUS
elif letter == "C+":
  gp = C_PLUS
elif letter == "C":
  gp = C
elif letter == "C-":
  gp = C_MINUS
elif letter == "D+":
  gp = D_PLUS
elif letter == "D":
  gp = D
elif letter == "F":
  gp = F
else:
  gp = INVALID

# Display the output
if gp == INVALID:
  print("That wasn't a valid number of grade points.")
else:
  print("That's", gp, "grade points.")
```

Q.3 **Question 1:**

Write a query that joins this submissions table to the loans table and returns the funded loan amount of each user's most recent 'Renewal' loan funded.

Each merchant id might have multiple loans (New and Renewals). For example, Merchant id "1" has below 2 renewals (1010, 1251). Pull the latest renewal loan and it's loan amount for all merchants.

Loans table:

Deal_id	Merchant_Id	Funded date	Industry	type
1	1	01/01/2016	Retail	New
100	80	04/01/2016	Construction	New
130	100	04/15/2016	Trucking	New
1010	1	6/23/2017	Retail	Renewal
1051	100	7/01/2017	Trucking	Renewal
1251	1	10/01/2017	Retail	Renewal

Submissions

Deal_id	Loan Amount	interest_rate	rate_type
1	10000	8.75	variable
100	10000	11.37	fixed
1010	15000	8.25	fixed
1051	20000	4.75	variable
1251	40000	4.75	variable
130	10000	3	variable

Expected output format:

Merchant_id	Deal Id	Loan Amount
1	1251	40000
100	1051	20000

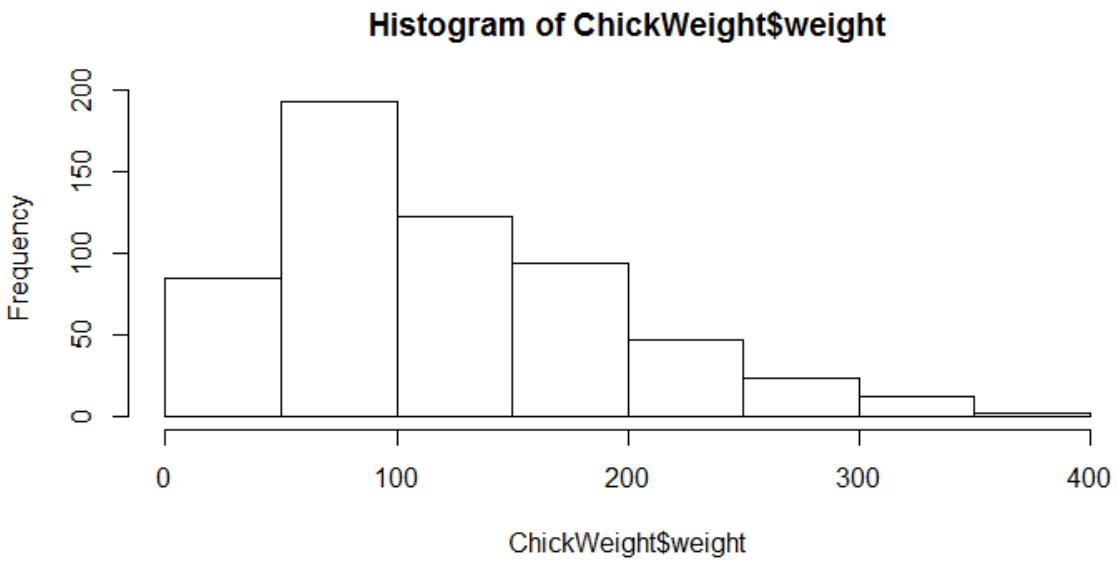
Solution:

```
SELECT L.Merchant_id, S.deal_id, S.Loan_Amount AS "Loan Amount"
```

```
FROM Submissions S

INNER JOIN (SELECT L.*, ROW_NUMBER() OVER (PARTITION BY Merchant_id ORDER BY funded_date
DESC)

AS latest

FROM Loans_table L) L

ON L.deal_id = s.deal_id AND latest = 1

WHERE L.loan_type ='Renewal'

ORDER BY Merchant_id
```

Q 4 Draw inferences about the following boxplot & histogram.

Hint: [Insights drawn from the plots about the data such as whether data is normally distributed/not, outliers, measures like mean, median, mode, variance, std. deviation]



Q5 Below are the scores obtained by a student in tests

34,36,36,38,38,39,39,40,40,41,41,41,41,42,42,45,49,56

1) Find mean, median, variance, standard deviation.
2) What can we say about the student marks? [**Hint**: Looking at the various measures calculated above whether the data is normal/skewed or if outliers are present].

Q.6

Calculate Mean, Median, Mode, Variance, Standard Deviation, Range & comment about the values / draw inferences, for the given dataset

- For Points, Score, Weigh>

Find Mean, Median, Mode, Variance, Standard Deviation, and Range and comment about the values/ Draw some inferences.

Points	Score	Weigh
3.9	2.62	16.46
3.9	2.875	17.02
3.85	2.32	18.61
3.08	3.215	19.44
3.15	3.44	17.02
2.76	3.46	20.22
3.21	3.57	15.84
3.69	3.19	20
3.92	3.15	22.9
3.92	3.44	18.3
3.92	3.44	18.9
3.07	4.07	17.4
3.07	3.73	17.6
3.07	3.78	18
2.93	5.25	17.98
3	5.242	17.82
3.23	5.345	17.42
4.08	2.2	19.47
4.93	1.615	18.52
4.22	1.835	19.9
3.7	2.465	20.01
2.76	3.52	16.87
3.15	3.435	17.3
3.73	3.84	15.41
3.08	3.845	17.05