# Lab Task-4

## Question 1:

### PAC

| Input | Processing | Output |
| --- | --- | --- |
| Three integers: a, b, c | Largest integer among the three | 1. Compare a, b, and c using conditional statements.  2. If a > b and a > c, a is the largest.  3. If b > a and b > c, b is the largest.  4. Otherwise, c is the largest. |

### PseudoCode

1. Input: a, b, c
2. If a > b and a > c then
3. print a
4. Else if b > a and b > c then
5. print b
6. Else
7. print c

## Question 2:

### PAC

| Input | Processing | Output |
| --- | --- | --- |
| An integer representing a year | 'yes' if it's a leap year, 'no' otherwise | 1. If the year is divisible by 4 but not by 100, or divisible by 400, then it is a leap year. |

### PseudoCode

1. Input: year
2. If (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0) then
3. print 'yes'
4. Else
5. print 'no'

## Question 3:

### PAC

| Input | Processing | Output |
| --- | --- | --- |
| Coefficients a, b, and c | 1. Calculate discriminant D = b² - 4ac.  2. If D > 0, two distinct real roots.  3. If D = 0, one real root.  4. If D < 0, two complex roots. | Real or complex roots |

### PseudoCode

1. Input: a, b, c
2. D = b \* b - 4 \* a \* c
3. If D > 0 then
4. print 'Two distinct real roots'
5. Else if D = 0 then
6. print 'One real root'
7. Else
8. print 'Two complex roots'

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## Question 4:

### PAC

| Input | Processing | Output |
| --- | --- | --- |
| Two floating-point numbers | 'Same' or 'Different' | 1. Round both numbers to three decimal places.  2. Compare the rounded values. |

### PseudoCode:

Input: num1, num2

round\_num1 = round(num1, 3)

round\_num2 = round(num2, 3)

If round\_num1 == round\_num2 then

print 'Same'

Else

print 'Different'

## Question 5:

### PAC

| Input | Processing | Output |
| --- | --- | --- |
| A character | 1. Check if input is an alphabet and has length 1.  2. If yes, check if the character is a vowel.  3. Print 'Vowel' if yes, 'Consonant' otherwise.  4. Print 'Error' for invalid inputs | 'Vowel' or 'Consonant', or 'Error' for invalid input |

### PseudoCode

1. Input: char
2. If char is not alphabet or length > 1 then
3. print 'Error'
4. If char in ['a', 'e', 'i', 'o', 'u', 'A', 'E', 'I', 'O', 'U'] then
5. print 'Vowel'
6. Else
7. print 'Consonant'

## Question 6:

### PAC

| Input | Processing | Output |
| --- | --- | --- |
| An integer from 1 to 7 | 1. Map numbers from 1 to 7 to weekday names.  2. If the number is out of range, print 'Error'. | Weekday name |

### PseudoCode

1. If day\_num == 1 then
2. print 'Monday'
3. Else if day\_num == 2 then
4. print 'Tuesday'
5. Else if day\_num == 3 then
6. print 'Wednesday'
7. Else if day\_num == 4 then
8. print 'Thursday'Else if day\_num == 5 then
9. print 'Friday'
10. Else if day\_num == 6 then
11. print 'Saturday'
12. Else if day\_num == 7 then
13. print 'Sunday'
14. Else
15. print 'Error'

## Question 6:

### PAC

| Input | Processing | Output |
| --- | --- | --- |
| A number | 1. Check if the number is zero, positive, or negative.  2. If the absolute value is less than 100, append 'Small'.  3. If the absolute value is greater than 1000, append 'Large'. | 'Zero', 'Positive', or 'Negative', with additional classification |

### PseudoCode:

If day\_num == 1 then

print 'Monday'

Else if day\_num == 2 then

print 'Tuesday'

Else if day\_num == 3 then

print 'Wednesday'

Else if day\_num == 4 then

print 'Thursday'Else if day\_num == 5 then

print 'Friday'

Else if day\_num == 6 then

print 'Saturday'

Else if day\_num == 7 then

print 'Sunday'

Else

print 'Error'

## Question 7:

### PAC

| Input | Processing | Output |
| --- | --- | --- |
| A number | 1. Check if the number is zero, positive, or negative.  2. If the absolute value is less than 100, append 'Small'.  3. If the absolute value is greater than 1000, append 'Large'. | 'Zero', 'Positive', or 'Negative', with additional classification |

### PseudoCode:

Input: number

If number == 0 then

print 'Zero'

Else if number > 0 then

If abs(number) < 100 then

print 'Small positive'

Else if abs(number) > 1000 then

print 'Large positive'Else

print 'Positive'

Else

If abs(number) < 100 then

print 'Small negative'

Else if abs(number) > 1000 then

print 'Large negative'

Else

print 'Negative'

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