



# My QuestionBook Template

Anchit Mulye

July 13, 2024



# My QuestionBook Template

Anchit Mulye

July 13, 2024

## Contents

<b>1</b>	<b>Mathematical Questions</b>	<b>1</b>
1.1	Solve the quadratic equation $ax^2 + bx + c = 0$ .	1
1.2	Evaluate the integral $\int e^x dx$ .	1
1.3	Find the derivative of $f(x) = \sin(x)$ .	1
1.4	Solve the system of linear equations:	1
1.5	What is the limit of $\frac{\sin(x)}{x}$ as $x$ approaches 0?	1
1.6	Expand the binomial $(a + b)^3$ .	1
1.7	What is the sum of the first $n$ terms of an arithmetic series with first term $a$ and common difference $d$ ?	1
1.8	Solve for $x$ in the equation $e^x = 5$ .	1
<b>2</b>	<b>Diagrams</b>	<b>2</b>
2.1	Simple Flowchart	2
2.2	Decision Tree	2
2.3	Data Flow Diagram	2
2.4	Class Diagram	3
<b>3</b>	<b>To Be Added</b>	<b>4</b>

## 1 Mathematical Questions

1.1 Solve the quadratic equation  $ax^2 + bx + c = 0$ .

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

1.2 Evaluate the integral  $\int e^x dx$ .

$$\int e^x dx = e^x + C$$

1.3 Find the derivative of  $f(x) = \sin(x)$ .

$$\frac{d}{dx} \sin(x) = \cos(x)$$

1.4 Solve the system of linear equations:

$$\begin{cases} 2x + 3y = 6 \\ 4x - y = 5 \end{cases}$$
$$x = 2, \quad y = 0$$

1.5 What is the limit of  $\frac{\sin(x)}{x}$  as  $x$  approaches 0?

$$\lim_{x \rightarrow 0} \frac{\sin(x)}{x} = 1$$

1.6 Expand the binomial  $(a + b)^3$ .

$$(a + b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$$

1.7 What is the sum of the first  $n$  terms of an arithmetic series with first term  $a$  and common difference  $d$ ?

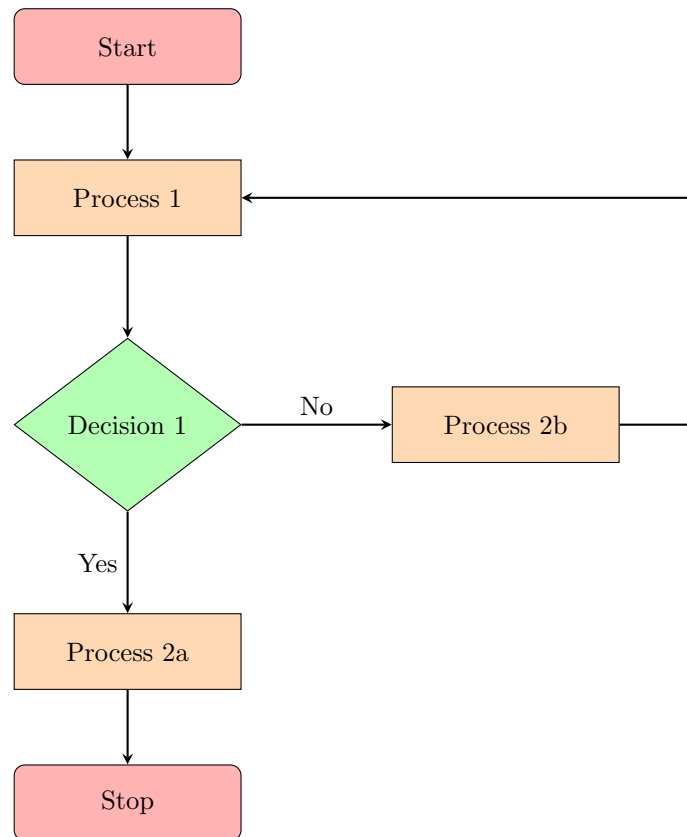
$$S_n = \frac{n}{2}[2a + (n - 1)d]$$

1.8 Solve for  $x$  in the equation  $e^x = 5$ .

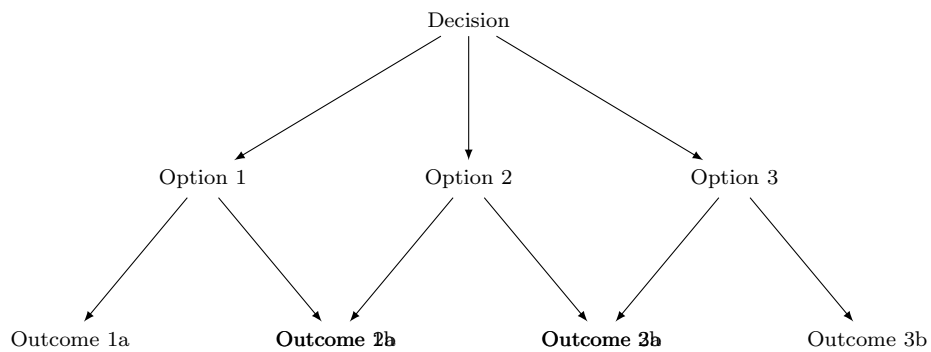
$$x = \ln(5)$$

## 2 Diagrams

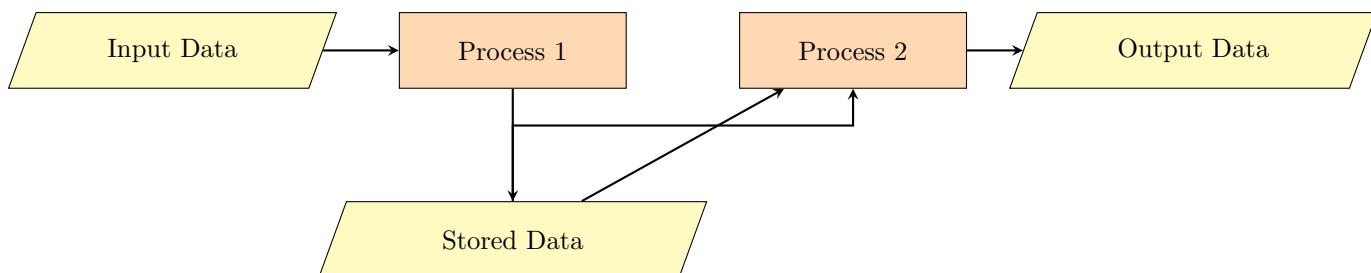
### 2.1 Simple Flowchart



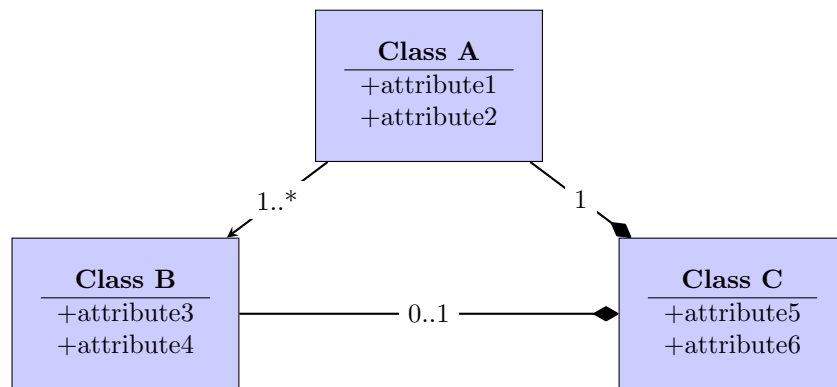
### 2.2 Decision Tree



### 2.3 Data Flow Diagram



## 2.4 Class Diagram





### 3 To Be Added