# SIT111 - Task 1.3P Truth Table to Canonical Representation

## Overview

This task focuses deriving the ‘Canonical Representation’ from a given truth table. Every Boolean function can be expressed using at least one Boolean expression called the canonical representation. Every Boolean function, no matter how complex, can be expressed using three Boolean operators only: And, Or, and Not.

When we design a digital circuit, often we would need to start with a truth table that describes what the circuit should do. And so, first, we need to be able to determine the Boolean expression that describes a given truth table.

**Task requirements**

1. Go through week 1 class materials on Google Classroom & complete the practice problems in the l earning sessions for week 1
2. Read the task instructions

## Task Instructions

Formulate the relevant Boolean expression, in **Canonical Form** for the truth table given below. Do not simplify the expression.

Show all steps & submit to Google Classroom as a PDF.

|  |  |  |  |
| --- | --- | --- | --- |
| P | Q | R | *f*(P,Q,R) |
| 0 | 0 | 0 | 1 |
| 0 | 0 | 1 | 0 |
| 0 | 1 | 0 | 1 |
| 0 | 1 | 1 | 0 |
| 1 | 0 | 0 | 1 |
| 1 | 0 | 1 | 0 |
| 1 | 1 | 0 | 0 |
| 1 | 1 | 1 | 1 |

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