# Requirements of the project

## Requirements

To develop a scientific calculator which has not only the arithmetic functionality but also there are other functionalities such as special functions (i.e., square root, factorial, prime, etc.), trigonometric functions and conversion functions (i.e., meter to centimeter, etc.)

### 1.1.1 High Level Requirements

Table 1.1 High level requirements for scientific calculator

|  |  |
| --- | --- |
| **ID** | **Description** |
| HL1 | Arithmetic Functions |
| HL2 | Special Function |
| HL3 | Trigonometric Functions |
| HL4 | Conversion Functions |
| HL5 | Logical Functions |

### 1.1.2 Low Level Requirements

Table 1.2 Low level requirements for scientific calculator

|  |  |
| --- | --- |
| **ID** | **Description** |
| HL1\_L1 | Add |
| HL1\_L2 | Subtract |
| HL1\_L3 | Multiply |
| HL1\_L4 | Divide |
| HL2\_L1 | Nth power |
| HL2\_L2 | Square |
| HL2\_L3 | Factorial |
| HL2\_L4 | Greater |
| HL2\_L5 | Smaller |
| HL2\_L6 | Prime |
| HL2\_L7 | Modulus |
| HL2\_L8 | Square root |
| HL3\_L1 | Sine Value |
| HL3\_L2 | Cos Value |
| HL3\_L3 | Tan Value |
| HL4\_L1 | Centimetre to meter |
| HL4\_L2 | Meter to Centimetre |
| HL4\_L3 | Meter to Kilometre |
| HL4\_L4 | Kilometre to Meter |
| HL4\_L5 | Inch to Centimetre |
| HL4\_L6 | Centimetre to inch |
| HL5\_L1 | AND |
| HL5\_L2 | OR |
| HL5\_L3 | NOT |
| HL5\_L4 | NAND |
| HL5\_L5 | NOR |
| HL5\_L6 | XOR |
| HL5\_L7 | XNOR |

## 1.2 4W1H

* What: Scientific calculator is a device used for computations like addition, subtraction etc. along with complex computations like logarithm, exponential, trigonometric etc..,
* Why: To reduce time consumption required to do computations manually.
* When: It is used when we required computations with functions which cannot be easily defined.
* Where: Complex, complicated computation is needed in in fields of aerospace, mathematics, engineering etc..,
* How: Scientific calculator can be used with the numbers along with defined functions required for the computation.

## 1.3 SWOT Analysis

|  |  |
| --- | --- |
| **Strengths**   * The scientific calculator created helps in computation of arithmetic, logical, distance conversions, trigonometric . * Special functions like factorial, power, prime numbers, modulus. | **Weakness**   * Arithmetic computation with negative numbers is not done. * Computation with floating points is not done. |
| **Opportunities**   * Program with negative numbers is can be developed. * Program for Decimal numbers computation is needed | **Threats**   * Imaginary numbers can’t be displayed. * Fault results for invalid inputs. |