Tutorial 6 – Hashing & Multi-way Tree

I - Required

The data will be used for question 1, 2, 3:

Space size: \( m = 23 \)

\( 59 \ 77 \ 61 \ 14 \ 42 \ 34 \ 76 \ 64 \ 54 \ 75 \)  
(in this order)

**Question 1:** Hash function \( h(k) = k \mod 17 \). Quadratic Probing is used when collision occurs.

**Question 2:** Use Double Hashing

\[
\begin{align*}
    h_1(k) &= k \mod 17 \\
    h_2(k) &= k \mod 13
\end{align*}
\]

**Question 3:** Use Linked List Resolution with hash function \( h(k) = k \mod 19 \)

**Question 4:** Let B-Tree which \( m = 3 \). From empty tree, insert list of number in this order, please draw B-Tree step-by-step:

\( 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 \)

**Question 5:** Which B-Tree in question 4, do following steps, draw B-Tree after each step.

- Remove 7
- Remove 10
- Remove 2
- Insert 7
- Remove 6
- Remove 5
- Remove 7
- Remove 4
- Remove 8