B-Tree Insertion: Data Set: {M, C, P, H, G, X, S, U, O, A, W} Step 1: Insert {M, C, P, H, G, X, S, U, O, A, W} **Insert M** Step 2: Insert {M, C, P, H, G, X, S, U, O, A, W} Step 3: Insert {M, C, P, H, G, X, S, U, O, A, W} **Insert C** Step 4: Insert {M, C, P, H, G, X, S, U, O, A, W} The node we need to insert H into in this case the global root Split is already = 2t-1 keys so we M must split in order to insert **Insert H** Step 5: Insert {M, C, P, H, G, X, S, U, O, A, W} **Insert G** • C • G • H • P Step 6: Insert {M, C, P, H, G, X, S, U, O, A, W} **Insert X** • C • G • H • \bullet P \bullet X \bullet Step 7: Insert {M, C, P, H, G, X, S, U, O, A, W} **Insert X** M • C • G • H • \bullet P \bullet S \bullet X Side note PSX was a great console Step 8: Insert {M, C, P, H, G, X, S, U, O, A, W} The node we are trying to insert U **Split** into is already = to 2t-1 so first we M must split and then insert U. • C • G • H • S P X **Insert U** M • C • G • H S P **U** • X • Insert {M, C, P, H, G, X, S, U, O, A, W} **Insert O** M • C • G • H • S P • U • X • Step 10: Insert {M, C, P, H, G, X, S, U, O, A, W} **Split** M S G C 0 • **U** • X • Н P **Insert A** M S G • A • C • **P** • • U • X • H • 0 • **Step 11:** Insert {M, C, P, H, G, X, S, U, O, A, W} **Insert W** M

S

0 •

• U • W • X •

G

Н