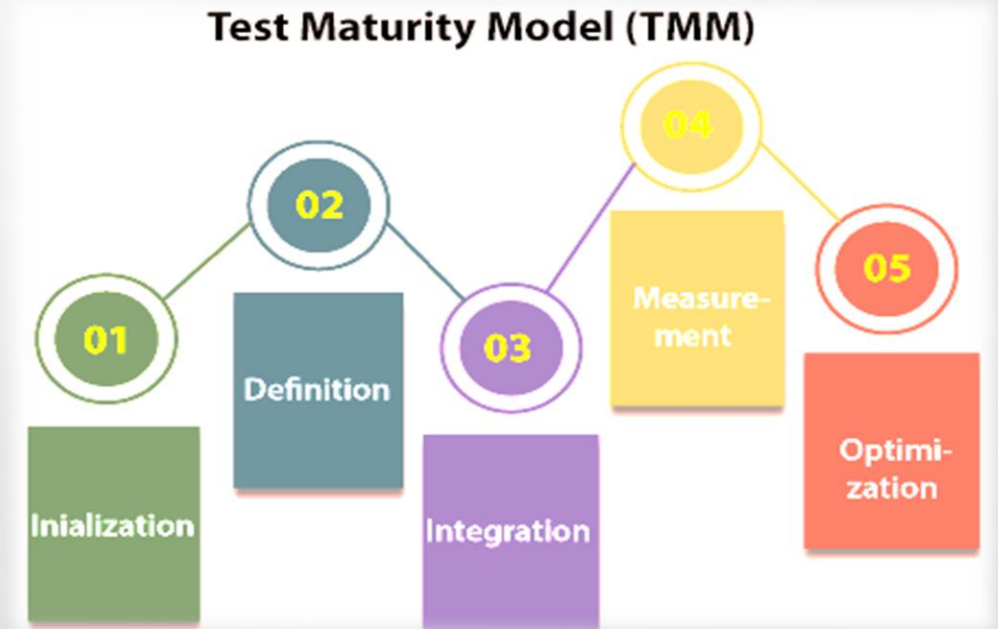# TEST MATURITY MODEL

WHAT IS TEST MATURITY MODEL?

- WHEN SOFTWARE IS TESTED, THERE ARE SO MANY TECHNIQUES ARE FOLLOWED TO ACCOMPLISH MAXIMUM QUALITY AND MINIMIZE DEFECTS OR ERRORS.

- **TEST MATURITY MODEL** IS ONE OF SUCH MODELS WHICH HAS A SET OF STRUCTURED LEVELS AND IT IS BASED ON THE **CAPABILITY MATURITY MODEL (CMM).**

- PRESENTLY, THE TMM IS REPLACED BY **TEST MATURITY MODEL INTEGRATION (TMMI)** WHICH IS FIVE LEVEL MODEL THAT PROVIDES A FRAMEWORK TO MEASURE THE MATURITY OF THE TESTING PROCESSES.

WHY WE NEED TMMI?

- THE **TEST MATURITY MODEL INTEGRATION (TMMI)** HELPS IN THE ASSESSMENT AND ENHANCEMENT OF THE TESTING PROCESS.

- THE IMPLEMENTATION OF THIS MODEL IMPROVES THE TEST PROCESS, THE SOFTWARE QUALITY, AND THE EFFICIENCY OF TEST ENGINEERING.

- HOWEVER, MANY EFFORTS WERE MADE TO EXPAND THE TESTING PROCESS; STILL, ZERO DEFECTS ARE IDENTIFIED FROM REALITY FOR THE SOFTWARE ENGINEERING. SO, TMMI IS THE FURTHER ATTEMPT TO ACHIEVE ZERO DEFECTS.

LEVELS OF TEST MATURITY MODEL

- THE FIVE LEVELS OF TMM :

  - **INITIALIZATION**

  - **DEFINITION**

  - **INTEGRATION**

  - **MEASUREMENT AND MANAGEMENT**

  - **OPTIMIZATION**

LEVEL 1: INITIALIZATION

- **INITIALIZATION**IS THE FIRST LEVEL OF THE TEST MATURITY MODEL. THERE IS NO DEFINED TESTING PROCESS IN THE FIRST LEVEL OF TMM.

- THE PURPOSE BEHIND INITIALIZATION LEVELS IS TO ENSURE THAT THE SOFTWARE SHOULD EXECUTE SUCCESSFULLY AND THERE IS NO OBSTRUCTION.

- AT THIS LEVEL, THERE WILL BE EXPLORATORY OR ADHOC TESTING PERFORMED ON THE SOFTWARE, AND THERE ARE NO QUALITY CHECKS BEFORE DELIVERING THE PRODUCT.

LEVEL 2: DEFINITION

- THE SECOND LEVEL OF A TEST MATURITY MODEL IS **DEFINITION, WHICH** IS ALL ABOUT DEFINING THE REQUIREMENTS.

- WE CAN CREATE THE TEST STRATEGIES, TEST PLANS, AND TEST CASES IN ORDER TO BUILD A SOFTWARE ACCORDING TO THE GIVEN REQUIREMENTS BY THE CLIENT,

- THE CRITICAL PURPOSE OF THE DEFINITION LEVEL IS TO ENSURE THAT THE SOFTWARE PRODUCT IMPLEMENTS ACCORDING TO THE REQUIREMENTS, DEVELOP TESTING, DEBUGGING GOALS, AND POLICIES THAT ARE FOLLOWED CONSISTENTLY.

LEVEL 3: INTEGRATION

- THE PRIMARY PURPOSE OF EXECUTING THIS LEVEL INTO THE TEST MATURITY MODEL IS TO ENSURE THAT THE TESTING IS INTEGRATED WITH THE SOFTWARE LIFECYCLE AND BECOMES A PART OF IT.

- **FOR INSTANCE,** AS WE KNOW THAT THE V MODEL HAS BOTH **DEVELOPMENT AND TESTING** PHASES, WHICH MEANS THAT THE TESTING COMES AFTER WHEN THE DEVELOPMENT PROCESS IS COMPLETED.

- THE ENTIRE TESTING OBJECTIVES ARE BASED ON RISK MANAGEMENT AS TESTING IS IMPLEMENTED INDEPENDENTLY.

LEVEL 4: MEASUREMENT AND MANAGEMENT

- THE FOURTH LEVEL OF A TEST MATURITY MODEL IS **MEASUREMENT** AND **MANAGEMENT** WHERE TESTING BECOMES PART OF ALL THE ACTIVITIES IN THE SOFTWARE LIFE CYCLE.

- HERE, WE WILL BE MANAGING AND MEASURING THE REQUIREMENTS.

- THE PRIMARY PURPOSE OF EXECUTING THIS LEVEL INTO THE **TEST MATURITY MODEL** IS TO ENSURE THAT THE ESTABLISHMENT OF A TEST MEASUREMENT PROGRAM.

- TO DETERMINE THE QUALITY MEASURES THIS LEVEL, INCLUDE **REVIEWING, REQUIREMENTS GATHERING, AND DESIGN OF THE SOFTWARE.**

LEVEL 5: OPTIMIZATION

- THE **LAST AND FIFTH LEVEL** OF THE TEST MATURITY LEVEL IS **OPTIMIZATION**.

- THE ESSENTIAL PURPOSE OF THIS LEVEL IS TO OPTIMIZE THE TEST PROCESS ITSELF.

- IN SIMPLE WORDS, WE CAN SAY THAT THE TESTING PROCESSES ARE VERIFIED, AND MEASURES ARE TAKEN TO ENHANCE THE FURTHER PROCESS.

- IN THIS, QUALITY CONTROL AND BUG INHIBITION ARE PERFORMED DURING THE SOFTWARE LIFE CYCLE.

- AT THE OPTIMIZATION LEVEL, WE MAINLY FOCUS ON DEFECT PREVENTION RATHER THAN DEFECT DETECTION AND WITH THE HELP OF THE DIFFERENT TOOLS, WE CAN PERFORM THIS TESTING.

DIFFERENCE BETWEEN CMM & TMM

S.No.	CMM	TMM
1.	The **capability Maturity Model** or CMM is used to consider the maturity of an organization's software processes.	Test **Maturity Model** or TMM specify testing and is related to checking the quality of the software testing model.
2.	It has significantly controlled the software development procedures.	It is used as a corresponding framework along with CMMi.
3.	CMMi mainly focuses on software development practices.	The complete focuses of the TMMi framework are on the processes which are applied to software testing to enhance the quality and efficiency of the testing process.

ADVANTAGES OF TEST MATURITY MODEL

DEFECT PREVENTION

- AS WE KNOW FROM THE ABOVE EXPLANATION, TMM EMPHASIZES DEFECT PREVENTION RATHER THAN BUG DETECTION BY MAKING THE TESTING PROCESS A PART OF ALL PHASES OF THE **SOFTWARE DEVELOPMENT LIFE CYCLE**.

- IT ALSO MAKES SURE THAT THE MAXIMUM DEFECTS ARE IDENTIFIED AND THE MOSTLY FINAL PRODUCT IS DEFECT-FREE.

ADVANTAGES OF TEST MATURITY MODEL

CLEAR REQUIREMENTS

- WHEN THE NECESSITIES OF THE SOFTWARE, DESIGNS ARE REVIEWED, TEST PLANS, AND TEST CASES ARE TESTED IN CONTRADICTION OF REQUIREMENTS. OR IF THE PRIMARY TEST AIM IS MORE PRECISE, THEN WE CAN ACHIEVE MORE ACCURATE TESTING.

ADVANTAGES OF TEST MATURITY MODEL

ASSURANCE OF QUALITY

- WE CAN ACHIEVE A HIGHER QUALITY OF THE PRODUCT IF WE INTEGRATE TESTING WITH ALL THE PHASES OF THE SOFTWARE LIFE CYCLE.

- ANALYSIS OF TEST PROCESSES WOULD ENHANCE THE OUTCOME, WHICH ASSURES A GOOD QUALITY PRODUCT.