**ARIANE 5 USECASE DESCRIPTION**

|  |  |  |  |
| --- | --- | --- | --- |
| NAME: | | Rocket Launch Calculator | |
| ACTORS: | | Launch Engineer, Test Engineer, Software Development Engineer | |
| TRIGGERS: | | User opens application and initiates software. | |
| PRE-CONDITION: | | 1) The hardware components must be in good working condition  2) The calculators must take in accurate input and return accurate output | |
| POST-CONDITION: | 1) All performed operations and their results must be stored  in the log report  2) Repeated Testing must be conducted to identify errors | |
| ACTOR-ACTIONS | | SYSTEM-ACTIONS |
| 1)The Launch Engineer launches the rocket.  2)Launch Engineer provides input to the Ballistic Flight Calculator  4) Launch Engineer provides input to the Terminal Velocity Calculator  7)Launch Engineer provides input to the Mach and Speed of Sound Calculator | | 3)Request sent to Terminal Velocity Calculator to provide terminal velocity value  5)Request sent to Rocket Altitude Calculator to provide altitude value  6) Final output given by Ballistic Flight Calculator  8) Output given by Mach and Speed of Sound Calculator |
| Alternative Flow of events: | | 1)In case errors are encountered by the software, the Test Engineer refers to the Log Report and reports the errors to the Software Development Engineer to fix the errors.  2)User must ensure that they have entered the correct values. If they have not they must re enter the values to get the correct output. |

Use case diagram:

CODE:

@startuml

package "Development Team"{

actor "Software Development Engineer" as SDE

}

package "Maintenance Team"{

actor "Test Engineer" as TE

}

package "Scientific Team"{

actor "Launch Engineer" as LE

}

rectangle "Rocket Launch Calculator"{

usecase "Ballastic Launch Calculator" as BFC

usecase "Terminal Velocity Calculator" as TVC

usecase "Rocket Altitude Calculator" as RAC

usecase "Mach and Speed of Sound Calculator" as MSSC

usecase "Log Record" as LR

}

BFC .down.> TVC : <<include>>

RAC .up.> BFC : <<extend>>

RAC ..> TVC : <<extend>>

RAC ..> MSSC : <<extend>>

BFC .down.> LR : <<include>>

TVC .down.> LR : <<include>>

RAC .down.> LR : <<include>>

MSSC .down.> LR : <<include>>

TVC -right-|> BFC

MSSC -right-|> BFC

LE --> BFC

LE --> MSSC

SDE -right-> TVC

SDE -right-> BFC

SDE -right-> RAC

SDE -right-> MSSC

TE -up-> LR

@enduml

**Output:**