**ASSIGNMENT-4**

**area ExponentialSeriesCode, CODE, READONLY**

**export \_\_main**

**ENTRY**

**\_\_main function**

**VMOV.F32 S1, #08** ; stores the value of x in e^x

**VMOV.F32 S2, #20** ; stores the number of terms considered in expansion of e^x = 1+x+(x^2/2!)+(x^3/3!)+(x^4/4!)+....

**VMOV.F32 S3, #01** ; counter to count the number of terms

**VMOV.F32 S4, #01** ; a temporary variable

**VMOV.F32 S5, #01** ; stores the resultant value

**VMOV.F32 S7, #01** ; stores constant value 1 in a register for further manipulations

**LOOP**

**VCMP.F32 S2,S3** ;compare the present number of terms to required number of terms in taylor series expansion and writes result to FPSR flag

**VMRS.F32 APSR\_nzcv, FPSCR** ; moves from FPSCR to APSR register and updates value of N,Z,C,V flags

**BLE stop ;**stops if the maximum number of terms reach equal to or less than current number of terms

**VDIV.F32 S6, S1, S3** ; stores value of numerator/denominator for each term in taylor series expansion

**VMUL.F32 S4, S4, S6** ; a temporary value is taken to store the value computed in previous loop and multiply it in the next loop

**VADD.F32 S5, S5, S4** ; adds each term of taylor series expansion to the equivalent result

**VADD.F32 S3, S3, S7** ; incrementing count value

**B LOOP**

**stop B stop ;** stop program

**endfunc**

**end**