Inter-State School Of Higher Education
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RESIT EXAM | JUNE 2021 Session | C LANGUAGE
LEVEL: I | Academic year: 2020/2021 | SPECIALITY: Software Engineering | Duration: 1hour

Exercise 1: (6marks) estimated time: 10 minutes

Write a function which, given an array of integers, returns the integer that appears most frequently in the array. E.g. for the array [1 2 3 2 3 4 2 5] your function should return 2.

Exercise 5: (14 marks) estimated time: 50 minutes

We wish to calculate an approximate value of cos(x), for a given real $x \in [0, \frac{\pi}{2}]$, thanks to the following formula: $\cos(x) = 1 - \frac{1}{2!}x^2 + \frac{1}{4!}x^4 - \frac{1}{6!}x^6 \ldots$

a) Write a function fact(n) that calculates n! **(4 marks)**

b) Write a function power(x,k) that calculates x^k **(4 marks)**

c) Write a program that reads a real number x, calculates and displays cos(x) to the nearest 10^{-4} **(6 marks)**

(Note: The evaluation has tostop when the next term of the geometric progression is less than10^{-4})

COURSE INSTRUCTOR: M. NDENGE