



NATIONAL UNIVERSITY  
OF COMPUTER & EMERGING SCIENCES  
PESHAWAR CAMPUS



# ASSIGNMNET-3

## INSTRUCTIONS:

Please keep the following in mind:

- Do not share your code with anyone else. All assignments are to be done individually.
- **SOLUTIONS/PLAGIARISM** from **INTERNET** will lead to **ZERO**
- You must submit the **.cpp** files only. Make sure you name as rollno\_name\_dept\_sec.cpp
- For example: **P22\_1234\_Name\_AI\_1A**
- Make sure you follow the naming schemes of the **.cpp** files correctly. Failure to do so will result in getting **ZERO**.
- No submissions other than **Classroom** will be entertained.
- Make sure your code compiles and runs. If a piece of code fails to compile, you'll be given a **ZERO**.
- All submissions will be checked for plagiarism. You are not allowed to copy code from the internet or any other individual.
- Any sort of plagiarism will lead to **ZERO**.
- **DO NOT MODIFY FILE, JUST WRITE YOUR CODE IN DESIRED AREA.**
- RENAME task.cpp according to this schema **P22\_1234\_Name\_AI\_1A**
- **ARRAYS** are not allowed.
- USE ONLY **LOOPS** and **FUNCTIONS**
- **LATE SUBMISSIONS WILL NOT BE ENTERTAINED**
- **DEADLINES TO BE FOLLOWED STRICTLY**

## 1. New School Game

A high school has “n” number of students and “m” number of lockers. For simplicity we are taking 100 students and 100 lockers. On the first day of school, the principal plays the following game: She asks the first student to go and open all the lockers. She then asks the second student to go and close all the even-numbered lockers. The third student is asked to check every third locker. If it is open, the student closes it; if it is closed, the student opens it. The fourth student is asked to check every fourth locker. If it is open, the student closes it; if it is closed, the student opens it. The remaining students continue this game. In general, the nth student checks every nth locker. If the locker is open, the student closes it; if it is closed, the student opens it. After all the students have taken their turn, some of the lockers are open and some are closed. Your job is to tell how many lockers are open at the end of the game and if we take 100 students and 100 lockers the result should be 10.

### 1.1 Tasks to do

There are two main tasks to complete:

1. You have to implement this scenario using a function named “`openLocks()`”, which takes two input parameters i.e `number_of_lockers` and `number_of_students` that returns the number of lockers that are opened.
2. Your job now, is to write a function named “`mostTouchableLocker()`” which takes two input parameters i.e `number_of_lockers` and `number_of_students` that returns the locker number which is touched by the most of the students. If you have more than one lockers that are most touched. Let say locker 1 and 2 both are most touchable, then your function should return 2

**Note: Please make sure your functions are defined before Main and `test1` and `test2` Functions**

Hint is on the next page.

**Hint: Try to do yourself. Try to break it into smaller parts and make function.**