Botswana Accountancy College like any other tertiary institution in the county rely much on students sponsored by DTEF. The students has to be registered with BAC to be sponsored. It all start with a new student starting in BAC and BAC Registry Office (BRO) communicate students details to DTEF. It’s a similar thing with continuing students, except that with continuing students their school (e.g. School of Computing) has to pass their results to BRO then BRO send complete list to DTEF with results. In short there is an information sharing between Schools, BRO and DTEF.

**Part**

This part is system documentation. It should consist of cover page, table of contents, introduction, methodology and discussion, conclusion and reference list. You are supposed to analyse the problem to come up with requirements. Model the requirements with Use case diagram, use class diagram to for your design part.

Briefly discuss and justify your choices in regards to:

i. Architectural design

ii. The possible channel protocols available in .NET remoting

iii. Object marshalling types

iv. Object activations.

v. In this scenario there are high chances that clients may access data at the same time and even modify it. This may lead to data inconsistency. Discuss possible concurrency measures available in C# .NET that you can use to deal with the problem and justify on the one you have chosen to implement in this case.

vi. In future BAC want the system to be expanded to cover Francistown and Maun.

Discuss the options and challenges.

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**Part B**

Develop a distributed application that resembles your design documentation. The student details should reside in one storage location. The application should have an appropriate GUI that adapt depending on the logon user. That is if a user is from BRO, the GUI should offer their services and if it is a course manager of a school the services should be provided.

**School**

A lecturer should be able to enter marks for a module for their students, view students and edit marks, while the course manager should be able to view results for a particular level and confirm or set results ready for publication. The course manager’s view should be sorted by outcome, that is **proceed**, **sup + Review**, **repeat and Drptc**. The system should compute student’s outcome automatically based on module passed and there should not be any overrides except by changing module marks.

**BRO**

The BRO officer should be able to see students details, students results but with no editable option.

The officer should also be able to select a view of proceeding students and flag them as registered. After a set date when all results are published, the system should have a reminding flag for the officer each time they login if there are still proceeding students who are not flagged as registered.

**DTEF**

The system should have extension points as web service methods that can share proceeding

Student’s details list with whatever application DTEF they are using. You are not required to create DTEF end point application.

**General**

The application in general should meet a multi layered architecture with:

Data storage

Processing Server-Client

Processing Fat Client

**Note**: One class fits all will result in loss of marks.