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**DT228/1 Algorithms Assignment**

*“The Technological University of Dublin (TU Dublin) will be brought into being by the convergence of Dublin Institute of Technology (DIT), Institute of Technology Tallaght (ITT) and Institute of Technology Blanchardstown (ITB) who already share this vision for higher education and have an agreed strategy for its implementation. Together the three partners will use their collective experiences, capabilities and resources to deliver higher education in a more efficient and equitable manner. The new TU Dublin will be a unitary institution formed by the three partners seizing this unique opportunity to make real change. It will be a three campus autonomous degree awarding university with critical mass, a strong online presence, and deeply embedded in all aspects of Dublin life.”*

1. Explain how you would merge and sort all students who ever attended any of these IoTs as follows:
   1. What sorting algorithm(s) have you considered?
   2. What data structure(s) would be most suited?
   3. In English, explain your solution.
   4. Write an algorithm for doing this.
2. Explain *two* good ways of searching for a student who was in IT Tallaght and is now in DIT as follows:
   1. In English, explain your solutions.
   2. Write an algorithm for the best solution described in 2a.
3. Implement a **prototype** using the algorithms derived in 1. and 2. You may use any programming language that you want.

**Marking Breakdown**

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| **Section** | **Mark** |
| Part 1 | 40% |
| Part 2 | 30% |
| Part 3 | 20% |
| Demo | 10% |

Part 1 and Part 2 must be submitted before **10am on Wednesday 24th April**.

Part 3 must be submitted before **10am on Monday 29th April**.

The project will be demonstrated on **Monday 29th April & Monday 6th May**.