**BCT 2309: OBJECT ORIENTED SYSTEMS AND DESIGN**

**ASSIGNMENT Nov-2023**

**Q1.**

1. Explain the term *robustness analysis* as relates to software development
2. Describe three types of *analysis classes* as used in OOSAD and clearly cite suitable examples. Illustrate their corresponding notations for each type of analysis classes.
3. Explain the importance of robustness analysis

**Q2**. Consider the following narrative regarding a Kenyan company (SavannahAuto) that keeps certain data related to the vehicles it owns.

1. Registration number (all vehicles)
2. Engine capacity (cc) (all vehicles)
3. Next vehicle test date (all vehicles)
4. Laden weight (vans and lorries only)
5. Unladen weight (Vans only)
6. Carrying capacity (Vans only)
7. Number of wheels (Lorries only)
8. Towing capacity (Lorries only)
9. Licence grade required (Lorries only)

SavannahAuto also keeps information about the trailers that can be used on a lorry. Each trailer has a trailer number, a load capacity and a date of last service. The company has 40 lorries and 120 trailers. The company needs to record which trailers can be attached to which lorries. A lorry may not be allocated a certain trailer, or it may be allocated one or more trailers. A trailer may be allocated to more than one lorry, but it has to be allocated to least one lorry. The manufacturer of each vehicle has to be recorded. The company may have many vehicles made by the same manufacturer (e.g. Ford), but it does not store information about manufacturers for which it does not have a vehicle. A vehicle (such as a Transit) is only made by one manufacturer. There are two types of employee, contractors and permanent. The attributes driver name, date of birth and address are held for all drivers. The attributes company name, start date and contract length are held for contractors. The attributes national insurance number, salary and references are held for contract staff. Both vans and lorries must be allocated to a permanent employee. Each van or lorry is allocated to just one permanent employee. A permanent employee has a maximum of 1 lorry or van allocated to them. However, there are some permanent employees (office staff) who do not have a lorry or van allocated to them.

Required: Draw a class diagram for the above narrative, specifically showing the attributes (data items) of each class and sub-class. Show other relationships between classes that may exist.

**Q3**. Describe the *Agile software development* model