# Food Magnate Simulation

## Class Diagram Tasks – Solutions

Shaded areas indicate the correct answers. Any differences in with case and spacing are acceptable, but any misspellings should not be awarded a mark. Accept 'integer' in lieu of 'int'.

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| **Household (10 marks)** |
| **#** ChanceEatOutPerDay: float  # XCoord: **int**  # **YCoord**: int  # ID: **int**  # NextID: int |
| + Household(int, int)  + GetDetails(): **String**  **+** GetChanceEatOut(): **float**  + GetX(): int  **+** **GetY**(): **int** |

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| **Settlement (14 marks)** |
| # StartNoOfHouseholds: **int**  # XSize: **int**  # YSize: **int**  **#** Households: Household[0..\*] |
| + Settlement()  + GetNumberOfHouseholds(): **int**  + **GetXSize**(): int  + **GetYSize**(): int *\*fine if getXSize and getYSize are the other way around*  **+** GetRandomLocation(int, int): **void**  + CreateHouseholds(): **void**  + AddHousehold(): **void**  **+** DisplayHouseholds(): void  + FindOutIfHouseholdEatsOut(int, int, **int**): **boolean** |

For the Company class, the first attribute and the first two subroutines are included in the question and should not be marked. All other lines are worth two marks each, one for the content before the colon and one for the content after the colon. You can accept 'integer' in lieu of 'int'. The alternating grey rows are only here to make this easier to read. Penalise for misspellings and any extra content within a line; do not penalise for capitalisation or spacing errors. Your attention is drawn to the private access level of one attribute and two subroutines. Peer assessment is recommended.

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| **Company (62 marks)** |
| # Name: String  # Category: String  # Balance: float  # ReputationScore: float  # AvgCostPerMeal: float  # AvgPricePerMeal: float  # DailyCosts: float  # FamilyOutletCost: float  # FastFoodOutletCost: float  # NamedChefOutletCost: float  # FuelCostPerUnit: float  # BaseCostOfDelivery: float  # Outlets: Outlet[0..\*]  # FamilyFoodOutletCapacity: int  # FastFoodOutletCapacity: int  # NamedChefOutletCapacity: int |
| + Company(String, String, float, int, int, float, float)  + GetName(): String  + GetNumberOfOutlets(): int  + GetReputationScore(): float  + AlterDailyCosts(float): void  + AlterAvgCostPerMeal(float): void  + AlterFuelCostPerUnit(float): void  + AlterReputation(float): void  + NewDay(): void  + AddVisitToNearestOutlet(int, int): void  + GetDetails(): String  + ProcessDayEnd(): String  + CloseOutlet(int): boolean  + ExpandOutlet(int): void  + OpenOutlet(int, int): void  - GetListOfOutlets(): int[0..\*]  - GetDistanceBetweenTwoOutlets(int, int): float  + CalculateDeliveryCost(): float |