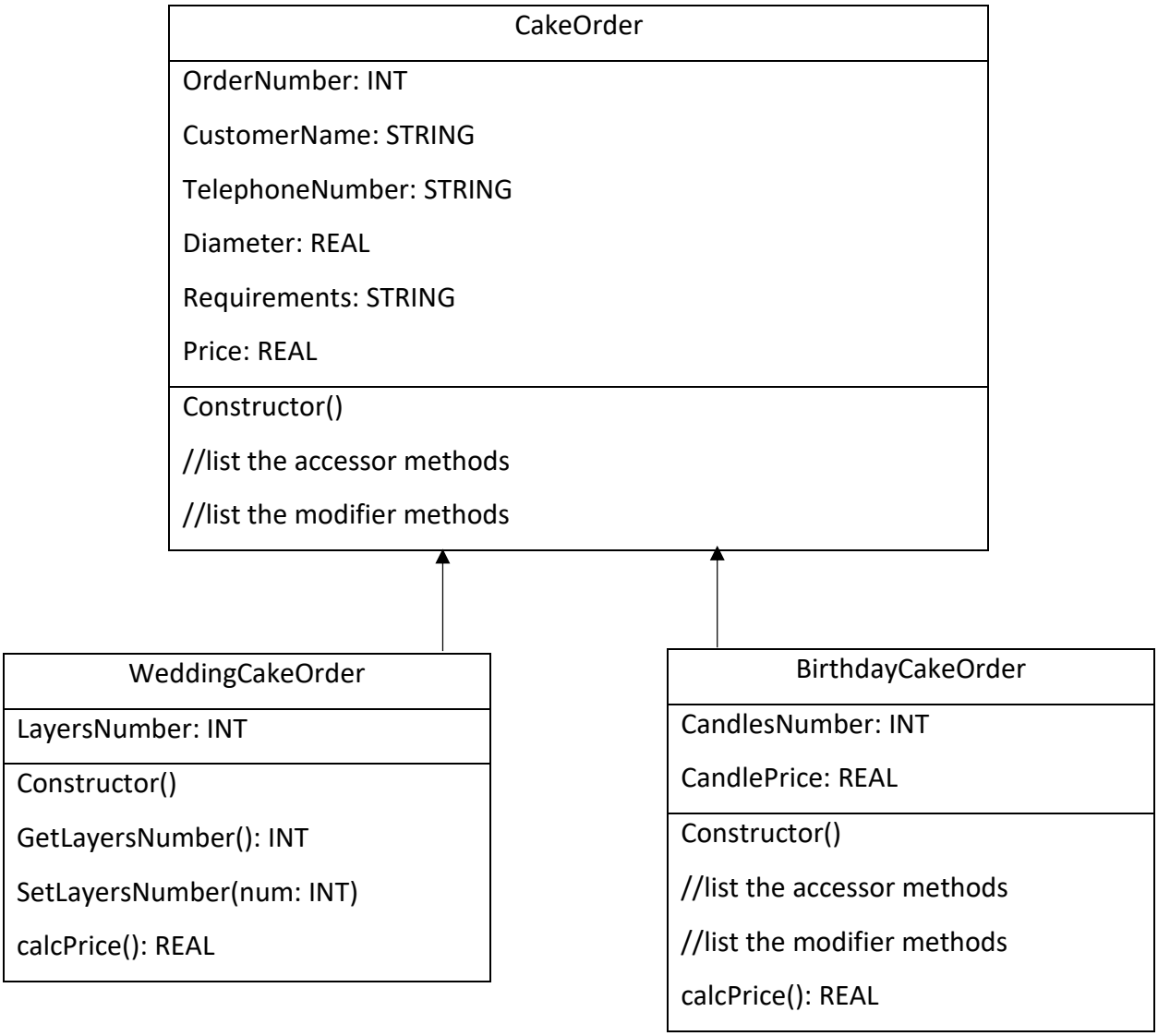
1a)



1b)

Range check to ensure maximum of four layers.

And type check to ensure the data entered is an integer value.

1c) Inheritance allows reusability where the subclass can reuse attributes, methods in the superclass. In this case, subclasses WeddingCakeOrder and BirthdayCakeOrder inherits the common attributes and methods from superclass CakeOrder.

2a) Yes, it is in 1NF because the table does not contain duplicate rows and each row does not contain more than one value per attribute.

2b) A table is 3NF when it fulfills 2NF and contains no non-key dependencies. Employee ID is the primary key of Employee. However, Skill Name and Cost per Hour are dependent on Skill ID (a non-key attribute) instead of Employee ID. Hence, the table is not in 3NF.

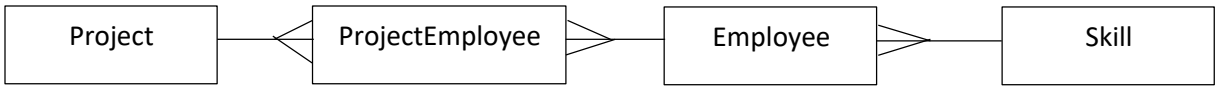
2c)

Employee (EmployeeID, EmployeeName, SkillID)

Skill (SkillID, SkillName, CostPerHour)

2d) ProjectID and EmployeeID

2e)



2f) Add a foreign key EmployeeID to Project table where the EmployeeID belongs to the Project Manager.

2g) When calculating the total cost, only the most updated cost per hour will be applied. Hence, the total cost will be inaccurate (i.e.: higher than the actual total cost).

2h)

SELECT Employee.EmployeeName and ProjectEmployee.HoursWorked

FROM Employee, ProjectEmployee, Project

WHERE Project.ProjectTitle = “Refurbish pool”

AND Employee.SkillName = “Titling”

AND Project.ProjectID = ProjectEmployee.ProjectID

ProjectEmployee.EmployeeID

AND ~~Project.EmployeeID~~ = Employee.EmployeeID

ORDER BY ProjectEmployee.HoursWorked DESC;

2i) 1) The construction company must get consent from its employees. 2) It must notify the employees the purposes for collecting and using their personal data. 3) It must ensure the collection and use of personal data would be considered appropriate to a reasonable person under the given circumstances. 4) The company must be accountable by making information about their personal data protection policies available on request.

3a) Denial-of-Service (DoS) attack floods an internet server with traffic or sending it information that triggers a crash. Hence, making it inaccessible to its intended users.

3b) The monitoring software detected a huge spike in site visits.

3c) The web server will respond, sending the browser the requested web page through HTTP, file transfer through FTP or email through IMAP. If the requested page, file or email does not exist, the server will respond with an error message.

3d) A firewall is a network security system that monitors, and controls incoming and outgoing network traffic based on predetermined security rules. A firewall typically establishes a barrier between a trusted internal network and untrusted external network, such as the Internet. It can be in the form of software or hardware.

3e) Digital signatures work by proving that a digital message or document was not modified—intentionally or unintentionally—from the time it was signed. Digital signatures do this by generating a unique hash of the message or document and encrypting it using the sender's private key. The hash generated is unique to the message or document and changing any part of it will completely change the hash. Once completed, the message or digital document is digitally signed and sent to the recipient. The recipient then generates their own hash of the message or digital document and decrypts the sender's hash (included in the original message) using the sender's public key. The recipient compares the hash they generate against the sender's decrypted hash; if they match, the message or digital document has not been modified and the sender is authenticated.

3f) Password authentication and multi-factor authentication.