1) The table is not in 1NF because the 'courses' attribute has multiple values. For a table to be 1NF, it must have only one value / single atomic value at each row and column.

ID ⇒ primary & candidate key, prime attribute

Name, Age
Location,
    course
⇒ Non prime attributes

The 1NF:

ID	Name	Age	Location
1	Sachin	22	Delhi
2	Ram	22	Jamshedpur
3	Mike	23	Chennai
4	Sameer	21	Bengaluru
5	Vijay	22	Mumbai

ID	Name	Age	Location	Courses
1	Sachin	22	Delhi	OS
1	Sachin	22	Delhi	DBMS
2	Ram	22	Jamshedpur	DAA
2	Ram	22	Jamshedpur	DBMS
3	Mike	23	Chennai	ML
3	Mike	23	Chennai	OS
4	Sameer	21	Bengaluru	DAA
4	Sameer	21	Bengaluru	ML
5	Vijay	22	Mumbai	ML
5	Vijay	22	Mumbai	DBMS

2nd Table ⇒ 1NF

²) The Table 2.1 is not in 2NF because it is not completely fun independent functionality:-

Emp-ID → Name, Age

Emp-ID, Duty Shift-ID ⇒ Duty-Shift

Emp ID ⇒ primary & candidate key

Prime attrib ⇒ Emp ID, Duty Shift ID

Non prime ⇒ Name, Age, Duty-Shift.

Converted Table (Emp ID)

1⟩

Emp-ID	Name	Age
101	Arun	26
102	Bobby	28
103	Suresh	32
104	Sita	24

2⟩

Emp ID	Duty Shift ID	Duty-Shift
101	1	Morning
102	2	Afternoon
103	3	Night
104	1	Morning

Table 2.2

Primary key ⇒ Emp-Id

Candidate key ⇒ Emp-Id, Project-Id

Prime attrib ⇒ "

Non-prime attrib ⇒ Name, proj-name, No. of hours.

Converted Table

Emp-Id	Name
123	Ajay
321	Charu
546	Rajesh
765	Abhishek

Emp-Id	Proj-Id	Proj-Name	No. of hours
123	Prj-21	Speech System	10
321	Prj-45	HR System	15
546	Prj-2A	Automate Tickets	23
765	Prj-11	NLP	16

3) Not in 3NF as there exists transitive dependency
b/w {cust-address} & {cust-loc} on {cust-post code}
& primary key.

3NF would be

Cust-ID	Cust-Name	Cust-post code
25	Dell	560037
45	Lenovo	560048
89	Acer	210067
90	Samsung	450078

{Cust-ID} ⇒ primary key.

Cust-postcode	Cust-address	Cust-loc
560037	Whitefield	Bangalore
560048	Marathahalli	Bangalore
210067	Bandra	Mumbai
450078	Delhi Central	Delhi

{ Cust-postcode } primary key

5) Not in 3NF as Transitive dependency exists

{ Contractor } → { Free }

{ Building } → Primary key.

{ Contractor, Builder, Fee } → Non-prime attributes

3NF should be

Building	Contractor	Builder
B - 2156	Taylor	Prestige
B - 8765	Sandeep	Hiranandani
B - 4657	Vishaka	Tata

Primary key → { Contractor, Fee }

Contractor	Fee
Taylor	2567891
Sandeep	3567356
Vishaka	4567990