# Common Notes for all case studies

1. All case study should have 3 layers / package – Repository (Java Spring Boot – JPA/hibernate), Service (Java Spring Boot) and UXUI (Angular).
2. Repository layer should handle all database operations.
3. Service layer should handle all business logics.
4. UXUI layer will be frontend.
5. Exception and Logging need to be handled in all layers.
6. All field validation need to be done in UXUI layer.
7. Coding standards need to be followed (refer Oracle and Angular site).
8. Please add appropriate error message in UI for all validation and boundary conditions.

# Case 1 – Group (Employer) Enrollment Management

Customer request to create a portal to enroll group (Employer). Group field details are provided below.

Enrollment screen have 2 sections

1. Group demographic
   1. Group Name (allow only A-Z a-z 0-9)
   2. Group Address (allow only A-Z a-z 0-9 and special character such as , / - )
   3. Group Admin Name (allow only A-Z a-z 0-9)
   4. Group Admin contact (allow only 0-9 – Length 10)
   5. Group Size (drop down Below 50, 50 – 100, 100 – 1000, 1000 – 10000, above 10000)
   6. Group start date (date format mm/dd/yyyy)
2. Group Benefit (Group can have multiple benefit – Minimum 1)
   1. Benefit Name (allow only A-Z a-z 0-9)
   2. Benefit Start date (Cannot be earlier than group start date)
   3. Benefit end date (Cannot be earlier than benefit start date)
   4. Benefit covered (Medical, Vision, Dental, Pharmacy – Multi choice)
   5. Benefit copay (currency)
   6. Benefit Deductible (currency)
   7. Benefit Coinsurance (Percentage – 0% to 90%)

# Case 2 – Individual Enrollment

Customer request to create a portal to enroll individual. Individual field details are provided below.

Enrollment screen have 3 sections

1. Individual demographic
   1. First Name (allow only A-Z a-z 0-9)
   2. Last Name (allow only A-Z a-z 0-9)
   3. Date of Birth (Future date not allowed)
   4. Address (allow only A-Z a-z 0-9 and special character such as , / - )
2. Family members (individual can have multiple family member – Max 3, Min 0)
   1. Family member Name (allow only A-Z a-z 0-9)
   2. Family member DOB (Child older than 24 years cannot be added as dependent)
   3. Family member relationship (Spouse, Child, Father, Mother, Father-in-law, Mother-in-law, Grand Father, Grand Mother)
3. Benefit Selection
   1. Benefit Start date (Can’t be past date, Can’t be more than 1 year in future)
   2. Benefit end date (December 31st of Benefit started year)
   3. Benefit covered (Medical, Vision, Dental, Pharmacy – Multi choice)

# Case 3 – Group employee enrollment (Upload)

Portal to be used by Employer to upload employee list for benefit enrollment.

Screen details

1. Screen to upload employee list
   1. Group Name
   2. Upload file details
2. Screen to check upload status
   1. Group Name
   2. Upload date
   3. Upload file name
   4. Upload status
   5. Total number of records
   6. Records processed
   7. Records rejected

Upload File Format (csv)

1. Group Name
2. Benefit Name
3. Employee Name
4. Employee DOB
5. Family Member Name 01
6. Family Member DOB 01
7. Family Member Relationship 01
8. Family Member Name 02
9. Family Member DOB 02
10. Family Member Relationship 02
11. Family Member Name 03
12. Family Member DOB 03
13. Family Member Relationship 03
14. Employee benefit start date
15. Employee benefit end date

Note: Group Demographic and Benefit table (as mentioned in case study 1) will be used for validation of upload file.

File Validation rule list

1. Verify if group is present in group demographic table
2. Verify if benefit is present in group benefit table
3. Verify employee DOB greater than 24 years
4. Verify family member DOB is less than 24 years (in case relationship is Child).
5. Verify if employee benefit start date is between group benefit start(Inclusive) and end date.
6. Verify if employee benefit end date is between group benefit start and end date(Inclusive).

# Case 4 – Individual Benefit Maintenance

Portal for customer representative to search and update employee details

Screen details

1. Screen to search employee by name (Wild card search), DOB and relationship (Self, Spouse, Child, Father, Mother, Father-in-law, Mother-in-law, Grand Father, Grand Mother)
2. Screen to edit employee address and all other fields should be view only (refer case study 2 – Section 1 Individual demographic)
3. Screen to add or remove family member (refer case study 2 – section 2 Family members)

For Field level validation during address update and update family member, refer case study 2.

# Case 5 – Provider Enrollment (Individual)

Portal for provider enrollment

Sections 1 – Provider info

1. Provider Name (allow only A-Z a-z 0-9)
2. Provider DOB (Older than 18 years)
3. Provider contact number (allow only 0-9 – Length 10)
4. Provider qualification (allow only A-Z a-z 0-9)
5. Provider qualification certificate id (allow only A-Z a-z 0-9)
6. Provider specialty (multi choice dropdown – General Medicine, Surgeon, Dentist, Gynecologist, Child Specialist, Ophthalmologist)

Section 2 – Location and work time (Provider can have multiple location – Minimum 1)

1. Location Name (allow only A-Z a-z 0-9)
2. Location Address (allow only A-Z a-z 0-9 and special character such as , / - )
3. Location appointment contact number (allow only 0-9 – Length 10)
4. Service provided in the location (allow only A-Z a-z 0-9)
5. Location work days (Mon, Tue, Wed, Thu, Fri, Sat, Sun – Multiple Choice)
6. Location Work hours (start and end time – 24 hour format hh:mm)

# Case 6 – EHR update by doctor

Portal for provider to update patient details

Sections 1 – Provider & Patient info

1. Provider Name (allow only A-Z a-z 0-9)
2. Patient Name (allow only A-Z a-z 0-9)
3. Appointment date (can’t be future date)
4. Emergency / Normal visit

Section 2 – Patient health records (Can add multiple records)

1. Symptoms mentioned by patient to doctor (free form text)
2. Diagnosis code

|  |  |
| --- | --- |
| **Diagnosis code** | **Description** |
| 0010 | Cholera |
| 0020 | Typhoid fever |
| 0030 | Food Poisoning |
| 0078 | Intestinal diseases |
| 0801 | Lung infection |
| 0509 | Smallpox |
| 0001 | Common cold |
| 8001 | Open wound |
| D001 | Dental decay |
| V001 | Eye Checkup |

1. Procedure code

|  |  |
| --- | --- |
| **Procedure code** | **Description** |
| 0011 | Injection for fever |
| 0022 | Injection for Pain relief |
| 0030 | Drip – Hospital admission |
| 0078 | Surgery |
| D001 | Dental cleanup |
| D005 | Root canal |
| D006 | Tooth removal |
| V001 | Laser eye correction |
| V002 | Specs for short/long sight |

Note: Selecting diagnosis code start 0 will display only procedure code start with 0 and so on.

1. Suggested next visit date (can’t be earlier than appointment date)

# Case 7 – Individual Claim submission/validation

Portal for individual claim submission

Section 1 – Patient and Benefit details

1. Patient Name (allow only A-Z a-z 0-9)
2. Employee Name (allow only A-Z a-z 0-9)
3. Employee Benefit Name (allow only A-Z a-z 0-9)
4. Provider Name (allow only A-Z a-z 0-9)
5. Emergency/Normal Visit
6. Appointment date (Can’t be future date)
7. Co-Pay payment (currency)

Section 2 – Service details (Multiple service can be added – Minimum 1)

1. Service provided (allow only A-Z a-z 0-9)
2. Diagnosis code (dropdown refer Case study 6 – section 2.2)
3. Procedure code (dropdown refer Case study 6 – section 2.3)
4. Service Charge (currency)

Note: Individual tables (as mentioned in case study 2) will be used for validation during submission.

Validation rule:

1. Employee Benefit name should match with details in individual benefit table.
2. Appointment date must be between Individual benefit start and end date

# Case 8 – Bulk Claim submission/validation

Portal to be used by provider to upload bulk claim submission.

Screen details

1. Screen to upload employee list
   1. provider Name
   2. Upload file details
2. Screen to check upload status
   1. Provider Name
   2. Upload date
   3. Upload file name
   4. Upload status
   5. Total number of records
   6. Records processed
   7. Records rejected

Upload file format (csv)

1. Provider Name (allow only A-Z a-z 0-9)
2. Patient Name (allow only A-Z a-z 0-9)
3. Employee Name (allow only A-Z a-z 0-9)
4. Employee Benefit Name (allow only A-Z a-z 0-9)
5. Emergency/Normal Visit
6. Co-Pay payment (currency)
7. 01 - Service provided (allow only A-Z a-z 0-9)
8. 01 - Diagnosis code (dropdown refer Case study 6 – section 2.2)
9. 01 - Procedure code (dropdown refer Case study 6 – section 2.3)
10. 01 - Service Charge (currency)
11. 02 - Service provided (allow only A-Z a-z 0-9)
12. 02 - Diagnosis code (dropdown refer Case study 6 – section 2.2)
13. 02 - Procedure code (dropdown refer Case study 6 – section 2.3)
14. 02 - Service Charge (currency)
15. 03 - Service provided (allow only A-Z a-z 0-9)
16. 03 - Diagnosis code (dropdown refer Case study 6 – section 2.2)
17. 03 - Procedure code (dropdown refer Case study 6 – section 2.3)
18. 03 - Service Charge (currency)

Note: Individual tables (as mentioned in case study 2) will be used for validation during submission.

Validation rule:

1. Employee Benefit name should match with details in individual benefit table.
2. Appointment date must be between Individual benefit start and end date

# Case 9 – Provider Enrollment (Hospital)

Portal for hospital enrollment

Sections 1 – Hospital info

1. Hospital Name (allow only A-Z a-z 0-9)
2. Hospital Address (allow only A-Z a-z 0-9 and special character such as , / - )
3. Hospital contact number (allow only 0-9 – Length 10)
4. Service provided in the hospital (allow only A-Z a-z 0-9)
5. Hospital work days (Mon, Tue, Wed, Thu, Fri, Sat, Sun – Multiple Choice)
6. Hospital Work hours (start and end time – 24 hour format hh:mm)

Sections 2 – doctor’s info

Ability to upload doctor roster (in csv format) with below column

1. Provider Name
2. Provider qualification (allow only A-Z a-z 0-9)
3. Provider qualification certificate id (allow only A-Z a-z 0-9)
4. Provider specialty (multi choice dropdown – General Medicine, Surgeon, Dentist, Gynecologist, Child Specialist, Ophthalmologist)

# Case 10 – Provider Search and book appointment

Portal for patient to search provider and book appointment

Screen details

1. Screen to search provider by address – zip code or city and specialty (dropdown refer case 5 – section 1.6)
2. Screen to book appointment – Provided appointment date, we need to check the availability of provider (refer case 5 – section 2 working day/time)
3. Check If appointment date is between individual benefit start and end date. If not, please display pop-up “you benefit will expire before selected appointment date.
4. If provider with specialty “surgeon” selected, please display a pop-up “Please have reference letter from your general medicine doctor”.
5. If provider with specialty “Dentist” selected, check if Patient have dental benefit (refer case 2 – section 3.c). If not, please display pop-up “You don’t have dental coverage. You need to pay complete service charge”.
6. If provider with specialty “Ophthalmologist” selected, check if Patient have vision benefit (refer case 2 – section 3.c). If not, please display pop-up “You don’t have vision coverage. You need to pay complete service charge”.
7. If all validation pass, update the appointment date.

Note: Provider table (as mentioned in case study 5) and Individual tables (as mentioned in case study 2) will be used for search/validation.

# Case 11 - Customer service portal

Portal for customer representative to search and view employee details (member demographic, family member details, Benefit details and claim history).

Screen details

1. Screen to search employee by name (Wild card search), DOB and relationship (Self, Spouse, Child, Father, Mother, Father-in-law, Mother-in-law, Grand Father, Grand Mother)
2. Screen to view member demographic, family member detail and benefit details.
3. Screen to view claim history and balance due payment.

Assumption:

Copay – Emergency visit – 500.00, Normal Visit – 100.00

Deductible – 2000.00 per year for complete family

Co-insurance – 20%

Calculation logic for balance due payment:

1. Total claim amount for specific appointment = Summation of service charge for a specific appointment date.
2. Total due after copay for specific appointment = Total claim amount for specific appointment – 500 or 100(500 – if emergency visit or 100 – if normal visit).
3. Total due after copay till date in the year = summation of all Total due after copay for specific appointment in that year.
4. Total due after deductible till date in the year = Total due after copay till date in the year – 2000.00
5. Total balance due till date in the year = (Total due after deductible till date in the year) X (20/100)

Reference:

Case 2 - member demographic, family member details and Benefit details

Case 7 - claim history

# Case 12 – Pharmacy claim submission/processing

Portal for individual claim submission

Section 1 – Patient and Benefit details

1. Patient Name (allow only A-Z a-z 0-9)
2. Employee Name (allow only A-Z a-z 0-9)
3. Employee Benefit Name (allow only A-Z a-z 0-9)
4. Provider Name (allow only A-Z a-z 0-9)
5. Appointment date (Can’t be future date)
6. Co-pay amount (currency)

Section 2 – Medicine/drug details (Multiple drug can be added – Minimum 1)

1. Drug provided (allow only A-Z a-z 0-9)
2. Drug type (Generic, Non-Generic)
3. Drug Cost (currency)

Note: Individual tables (as mentioned in case study 2) will be used for validation during submission.

Validation rule:

1. Employee Benefit name should match with details in individual benefit table.
2. Appointment date must be between Individual benefit start and end date
3. Employee should have select “pharmacy” in benefit covered.

# Case Evaluation criteria

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| --- | --- | --- |
| **Evaluation criteria** | **Weightage** | **Scoring Scale** |
| Coding Standards | 20% | 0 – 10 |
| Code documentation thru comments/Javadoc | 10% | 0 – 10 |
| Exception handling & Logging | 30% | 0 – 10 |
| Is all requirement covered | 40% | 0 – 10 |