**4. Detailed Design**

**Table: Insurance company  class**

|  |
| --- |
| **Insurance company** |
| -companyName: String     -address: String     -phoneNumber: String     -policies: List<Policy>     -claims: List<Claim>     -payments: List<Payment> |
| + getCompanyName(): String  + setCompanyName(name: String): void  + getAddress(): String  + setAddress(address: String): void  + getPhoneNumber(): String  + setPhoneNumber(phoneNumber: String): void  + getPolicies(): List<Policy>  + addPolicy(policy: Policy): void  + removePolicy(policy: Policy): void  + getClaims(): List<Claim>  + addClaim(claim: Claim): void  + removeClaim(claim: Claim): void  + getPayments(): List<Payment>  + addPayment(payment: Payment): void  + removePayment(payment: Payment): void  + approvePolicy()  + approveClaim()  + approveCancellation()  + viewUsers() |

**Table: Attributes description for insurance company class**

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute | Type | Visibility | Invariant |
| companyName | String | private | companyName <> NULL and the companyName must contain only valid characters (a-z) |
| address | string | Private | address <> NULL  the address must be in a valid format[country/city /subcity/house no]  the address must contain a valid characters (a-z ,0-9) |
| phoneNumber | String | Private | phone number <>NULL and it must be between 10-11 characters |
| policies | List | Private | policies <> NULL the length of policy must be in range of 100 |
| claims | List | private | claims <> NULL the length of claim collection must be with the range of 100 |
| payments | List | private | payments <> NULL the payment must be a positive number. |

**Table: 7 Operation description for insurance company class**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Operation | Visibility | Return type | Argument | Pre-Condition | Post Condition |
| getCompanyName | Public | string | . | - | returns the companyName |
| setCompanyName | Public | void | name  String | -the policy must not be null  -the company name must be provided. | sets the company name to the provided value. |
| getAddress | Public | string | - | - | returns the company address. |
| setAddress | public | void | String  address | -the policy must not be null  -valid  address must be provided  -the name must be in the title case. | sets the company address to the provided value . |
| getPhoneNumber | public | string | - |  | returns the company  phone number. |
| setPhoneNumber | public | void | String  phoneNumber | phone number must be provided. | sets the company phone number to the provided value. |
| getPolicies | public | List | - | - | returns the list of policies associated with the company. |
| addPolicy | public | void | Policy  policy | all policies must have active status  -policies collection must not empty | adds a policy to the list of policies. |
| removePolicy | public | void | Policy  policy | all policies must have active status  -policies collection must not empty | removes policy to the list of policies. |
| getClaims | public | List | - | - | returns the list of claim associated with the company. |
| addClaim | public | void | Claim  claim | -the company name must not be null  -the claim collection must not be empty  -all claims must have unique identifiers (claim Id) | adds a claim to the list of claims. |
| removeClaim | public | void | Claim  claim | -claim must be provided  --all the claims must have valid status (pending,approved ,rejected) | remove a claim from a list of claims. |
| getPayments | public | List | - | - | returns the list of payments associated with the company. |
| addPayment | public | void | Payment payment | -policy id must not be null  -claim id must not be null  - the payment must be provided. | adds the payment to the list of payments. |
| removePayment | public | void | Payment payment | -policy id must not be null  -claim id must not be null  - the payment must be provided. | removes a payment from the list of payments. |
| approvePolicy | public | void | - | -the valid (non-null)policy object must be provided    -the policy must be in specific status before it can be approved. | approves a policy |
| approveClaim | public | void | - | -the valid (non-null claim object must be provided)  -the claim must be in specific status before it can be approved. | approves a claim |
| approveCancellation | public | void | - | - | approves the policy cancellation. |
| viewUsers | public | list | - | - | displays information about the users associated with the company. |

**Table: POLICY class**

|  |
| --- |
| **POLICY** |
| + policyID: String  + startDate: Date  + endDate: Date  + status: String  + policyType: String  + insuredProperty: String  + premium: double  + totalCost: double |
| + getPolicyNumber(): String  + getStartDate(): Date  + setStartDate(startDate: Date): void  + getEndDate(): Date  + setEndDate(endDate: Date): void  + getPremium(): double  + setPremium(premium: double): void  + getinsuredProperty(): String  + setInsuredProperty (insured Property: String): void  + getStatus(): String  + setStatus(status: String): void  + getPremium(): void  + setPremium(premium: double): void  + getTotalCost(): void  + setTotalCost(totalCost: double): void  + deletePolicy(): void  + renewPolicy(): void |

**Table: Attributes description for POLICY class**

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute | Type | Visibility | Invariant |
| policyID | String | public | policy ID <> NULL  the policy id must be in specific format  [0-9]  the length of policy id must be 10 characters |
| startDate | Date | public | startDate <> NULL  the start date must be before or equal to end date  the date must be in a valid date format (date /month/year) |
| endDate | Date | public | endDate <> NULL  the end date must be after or equal to end date  the end date must be in a valid date format (date/month/year) |
| status | string | Public | status <> NULL  the status must be in valid format |
| policyType | string | public | policyType <> NULL  policy type must be in a valid format |
| insuredProperty | string | public | insuredProperty <> NULL  the insured property type must be valid |
| premium | double | public | premium <> NULL,  premium must be positive number |
| totalCost | double | public | totalCost<> NULL,  totalCost must be positive number |

**Table: 7 Operation description for policy class**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Operation | Visibility | Return type | Argument | Pre-Condition | Post Condition |
| getPolicyID | Public | string | - | - | returns policy ID |
| getStartDate | Public | Date | - | The insurance policy object must be in a valid state. | returns the policy start date. |
| setStartDate | Public | void | Date startDate | a valid date must be provided. | sets the policy  start date to the provided value |
| getEndDate | public | Date | - | - | returns the policy end date. |
| setEndDate | public | void | Date  endDate | a valid end date must be provided. | sets the policy end date to the provided value |
| getPremium | public | double | - | - | returns the policy premium |
| setPremium | public | void | double  premium | premium must be provided. | sets the policy premium to the provided value |
| getinsuredProperty | public | String | - | - | returns the insured property |
| setInsuredProperty | public | void | String  insured Property | -insured property must be provided.  -the insured property type must be valid  -the insured property location must be valid  -the insured property coverage must be valid.  -the insured property deductible must be valid. | sets the insured property to the provided value |
| getStatus | public | string | - | - | returns the policy  status. |
| setStatus | public | void | String  status | -the status must be provided.  -the status must be in one of the allowed options (active,inactive,pending) | sets the policy status to the provided value |
| getPremium | public | void | - | - | returns the premium. |
| setPremium | public | void | double  premium | - | The premium is set to the provided value. |
| getTotalCost | public | void | - | - | returns the total cost of the policy. |
| setTotalCost | public | void | double  totalCost | -total cost must be provided | The total cost is set to the provided value. |
| deletePolicy | public | void | - | status is not approved | delates the policy |
| renewPolicy | public | void | - | status is “approved”and current date is before date | renews the policy. |

**Table:  payment  class**

|  |
| --- |
| **payment** |
| +paymentID: String  +PolicyID: String  +amount: double  +paymentDate: Date  +status: String  +accountID: String  +paymentReason: String  +transactionMethod: String |
| + getPaymentID(): String  + getClaimID(): String  + getAmount(): double  + setAmount(amount: double): void  + getPaymentDate(): Date  + setPaymentDate(paymentDate: Date): void  + getStatus(): String  + setStatus(status: String): void  + processPayment(): void  + cancelPayment(): void  + getAccountID(): String  + getPaymentReason(): String  + getTransaction Method(): String |

**Table: Attributes description for payment class**

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute | Type | Visibility | Invariant |
| paymentID | String | public | paymentID <> NULL  the length of payment id must be 9 characters, the amount must be positive number,the paymentid must be unique. |
| PolicyID | String | public | PolicyID <> NULL ,the policy id must be unique |
| amount | double | public | amount <> NULL and must be numbers. |
| paymentDate | Date | public | paymentDate <> NULL and payment date must be valid date format.(date/month/year) |
| status | String | public | status <> NULL must be in a valid format |
| accountID | String | public | accountID<>NULL the account id must be unique ,the length of account id must be 5 and format 0-9 |
| paymentReason | String | public | paymentReason<>NULL and must not contain special characters and integers. |
| transactionMethod | String | public | transactionMethod<>NULL |

**Table: 7 Operation description for payment class**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Operation | Visibility | Return type | Argument | Pre-Condition | Post Condition |
| getPaymentID | Public | String | - | - | returns the payment id |
| getClaimID | Public | String | - | - | returns the claim id |
| getAmount() | Public | Double | - | - | returns the payment amount |
| setAmount | public | void | amount (double) | the amount must be provided. | sets the payment amount to the provided value. |
| getPaymentDate | public | Date | - | - | returns the payment date |
| setPaymentDate | public | void | paymentDate (Date) | -the paymentDate must be provided. | sets the payment date to a provided value.. |
| getStatus | public | String | - | - | returns the payment status |
| setStatus | public | void | status (String) | -the status must be provided.  -the status must be in one of allowed options(active ,inactive,pending) | sets the payment status to the provided value |
| processPayment | public | void | - | - | initiates the process of processing the payment |
| cancelPayment | public | void | - | status must be “pending”or “processed” | initiates the process of canceling the payment |
| getAccountID | public | String | - | - | returns the associated account id |
| getPaymentReason | public | String | - | - | The payment reason is displayed. |
| getTransaction Method | public | String | - | - | returns the transaction method. |