Software Design Document

Diabetes Care

By

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Document History

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diabetes -SDD-V.0.1.docx	Add : Chapter One Introduction. Add: Chapter Two System Architecture.	Draft	February 29, 2016	JC, PS	JC, PS	JC, PS
diabetes -SDD-V.0.1.docx	Add: Chapter three Detailed Design. Add: class diagram. Add: Sequence diagram.	Draft	April 25,2016	JC, PS	JC, PS	JC, PS
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*PS: Dr. Prompong Sugunnasil

*JC: Mr. Jirayu Chinpongsuwan

Table Content

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Chapter One | 4.1 Introduction

4.1.1 Document Purpose

The Software Design Document (SDD) is a document used to establish architecture of Diabetes web application, compose of the high level of software design, system architecture, database system and graphic user interfaces. The document is purpose to describe the overall system design and detail in each part of functional design. The SDD is importance thing so that it is the blueprint of system that provided to be explicit understanding between developers.

4.1.2 Software Scope

Software Design Document is the document use to explain overall design architecture of the Diabetes web application. This document covers content about

- User Characteristic
> The user characteristic is the information explaining about activity that user can interact and perform with the application.

- Constrains
> The project constrains is the information describe about a limit of application that might have effect with user.

- System Architecture
> The system Architecture is the information about overall architecture of an application system.

- Detailed Design
> The detail design is the information describes each detail of design architecture within the application system.

- Data Architecture
> The data architecture is the information about overall data property which use in the application.

- User Interface Design
> The user interface design is the information about overall design interface of the application.

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4.1.3 Definitions, Acronyms, and Abbreviations

- **Key Definitions**

Diabetes	Name of this project
System	"Computer programs, procedure and associated documentation and data pertain to the operation of a computer system" [IEEE90]
Database	A collection of logically related data stored together in one or more computerized files. [IEEE90]

- **Key Acronyms and Abbreviation**

SDD	Software design document
SD	Sequence diagram
UI	User interface
ID	Identity number
CD	Class diagram

4.1.4 User characteristic

      User: User can direct access an application via their desktop, tablets, and phones to every part of this application by requesting internet connection. The patient is the person who can create a health plan and monitor nutrition behavior for preventing theirs from the complications disease. Admin is the person who can manage the account of doctor, nurse, and nutritionists. Doctor/Nurse is the person who can enter patient information into the system and management the activity in a part of insert/update/delete. And the nutritionist is the person who can control the nutrition in part of insert/update/delete.

4.1.5 Design Constraints

Need PHP 5.5 platform or newer.

      Diabetes web application use MVC .Net platform on developing process. Therefore, user need any web browser for run this application.

Chapter Two | 4.2 System Architecture

Figure 1: The architecture system of "Diabetes Care" web application.

The "Diabetes Care Web Application" can run on the different platform (mobile web browser, PC web browser). The first part, database server stores the data of Diabetes application about the information of Patient, nutritionists and data of foods and activity. Second, The user who can send the request via a web browser to "Diabetes Care web application". The application will request information from the database and return to the user.

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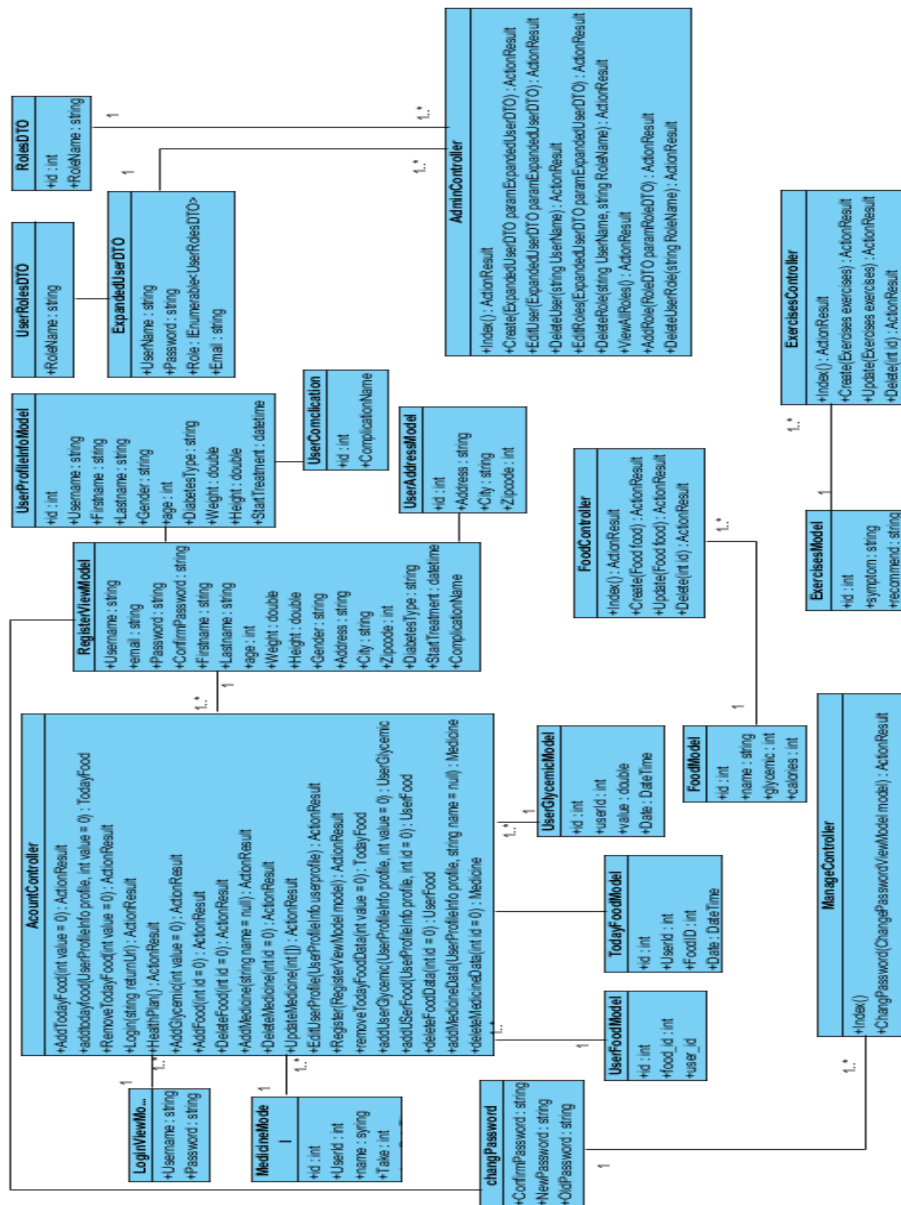# Chapter Three | 4.3 Detailed Design

Figure 2: The High Level Design represents the relationship between UML Class Diagrams.

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4.3.1 Class Diagram Description

4.3.1.1 CD01: AcountController

Figure 3: CD01: AccountController

Description: This class is a controller for the user to go to the login page for logging-in and logging-out, go to register page for registering, manage health plan, manage medicine of user, add glycemic for analyzing in a form of the graph, and user manage user profile.

Method:

ID	Name	Description	access modifiers	Parameter	Return Type
1	AddTodyFood()	This method select food from the food database and add to table TodayFood. return Redirect("/Account/");	public	int value = 0	ActionResult
2	addtodayfood()	This method get list of food that the user eat to day when the user has input list of food.	public	UserProfileInfo profile, int value = 0	TodayFood
		If the user dose not input list of food. The system shall return null.			
3	RemoveTodayFood()	This method selects food by id form table TodayFood and removes. return Redirect("/Account/");	public	int value = 0	ActionResult

4	removeTodayFoodData()	This method get list of food that the user eat today when the user has input list of food.	public	int value = 0	TodayFood
		If the user dose not input list of food. The system shall return null.			
5	Login()	For redirecting user to login page. return View();	public	string returnUrl	ActionResult
6	HealthPlan()	This method has to calculate BMI, BMR food glycemic, and food calorie. return View();	public	-	ActionResult
7	AddGlycemic()	For user add value of glycemic index or blood sugar. return Redirect("/Account/HealthPlan/");	public	int value = 0	ActionResult
8	addUserGlycemic()	This method get blood sugar value of user when the user has input blood sugar value.	public	UserProfileInfo profile, int value = 0	UserGlycemic
		If the user dose not input blood sugar value. The system shall return null.			
7	AddFood ()	For user can select and add food on health plan page. return Redirect("/Account/HealthPlan/");	public	int id = 0	ActionResult
8	addUSerFood()	This method get list of food that the user need to inset to plan when the user has input food to list.	public	UserProfileInfo profile, int id = 0	UserFood
		If the user dose not input food. The system shall return null.			
9	DeletFood()	For user can delete food on health plan page. return Redirect("/Account/HealthPlan/");	public	int id = 0	ActionResult
10	deleteFoodData()	This method get list of food that the user need to delete from plan when the user has input food name.	public	int id = 0	UserFood

		If the user dose not input food name. The system shall return null.			
11	AddMedicine()	For user can add his medicine to the system. Return Redirect("/Account/DisplayProfile/")	public	string name = null	ActionResult
12	addMedicineData()	This method gets list of medicine that the user inset to the system. When the user input medicine to list.	public	UserProfileInfo profile , string name = null	Medicine
		If the user dose not input medicine. The system shall return null.			
13	DeleteMedicine()	For user can delete his medicine. return Redirect("/Account/DisplayProfile/")	public	int id = 0	ActionResult
14	deleteMedicineData()	This method get list of medicine that the user need to delete when the user has input medicine.	public	int id = 0	Medicine
		If the user dose not input medicine. The system shall return null.			
15	UpdateMedicine()	For user can edit/update his medicine. return Redirect("/Account/");	public	int[] medicine = null	ActionResult
16	[HttpPost] Login ()	For user login to the system. return Redirect("/Account/Index");	public	LoginViewModel model, string returnUrl	ActionResult
17	EditUserProfile()	For user can edit/update the user information on profile page. return RedirectToAction("Index", "Home")	public	UserProfileInfo userprofile	ActionResult
18	Register()	This method records the user info to the database. return RedirectToAction("Index", "Home")	public	RegisterViewModel model	ActionResult

Table 1: Method of CD01: AccountController

4.3.1.2 CD02: ManageController

ManageController
+Index()
+ChangPassword(ChangePasswordViewModel model) : ActionResult

Figure 4: CD02: ManageController

Description: This class is controller for user to go to Index page that is first page of management page, change password is page for user need to change new password.

Method:

ID	Name	Description	Access modifiers	Parameter	Return Type
1	Index()	This method defines the error message. return View(model);	public	-	ActionResult
2	Change Password()	For user can change or manage password for login to the system. return View();	public	ChangePasswordViewModel model	ActionResult

Table 2: Method of CD02: ManageController

4.3.1.3 CD 03: AdminController

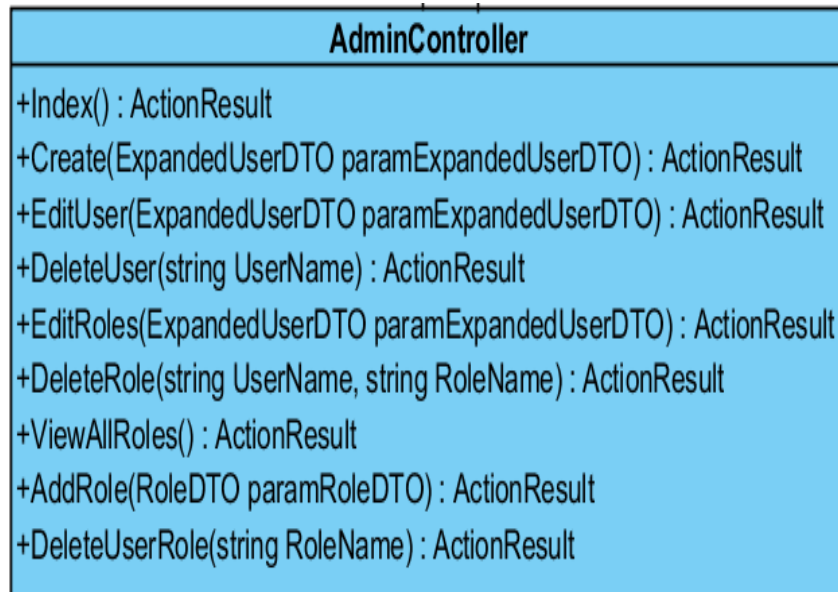| AdminController |
| --- |
| +Index() : ActionResult |
| +Create(ExpandedUserDTO paramExpandedUserDTO) : ActionResult |
| +EditUser(ExpandedUserDTO paramExpandedUserDTO) : ActionResult |
| +DeleteUser(string UserName) : ActionResult |
| +EditRoles(ExpandedUserDTO paramExpandedUserDTO) : ActionResult |
| +DeleteRole(string UserName, string RoleName) : ActionResult |
| +ViewAllRoles() : ActionResult |
| +AddRole(RoleDTO paramRoleDTO) : ActionResult |
| +DeleteUserRole(string RoleName) : ActionResult |

Figure 5: CD03: AdminController

Description: This class is controller for admin need to go to administration management page for manage the role of user account. Such as create new user account, update account, delete account, add role, edit role, delete role.

Method:

ID	Name	Description	Access modifiers	Parameter	Return Type
1	Index()	This method returns data from the database.	public	-	ActionResult
2	Create()	For admin can create new user account to the system. return View("Create")	public	ExpandedUserDTO paramExpandedUserDTO	ActionResult
3	EditUser()	For admin can update or edit user account in the system. return View("EditUser")	public	ExpandedUserDTO paramExpandedUserDTO	ActionResult

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4	DeleteUser()	For admin can delete user from the system return View("EditUser").	public	string UserName	ActionResult
5	EditRole()	For admin can delete nutritionists from the system. return View("EditRoles")	public	ExpandedUserDTO paramExpandedUserDTO	ActionResult
6	DeleteRole()	For admin can delete role from the system. return View("EditRoles")	public	string UserName, string RoleName	ActionResult
7	ViewAllRole()	For admin can view name of all role.	public	-	ActionResult
8	AddRole()	For admin can add role to the system. return View("AddRole")	public	RoleDTO paramRoleDTO	ActionResult
9	DeleteUserRole()	For admin can delete role of user account,	public	string RoleName	ActionResult

Table 3: Method of CD03: AdminController

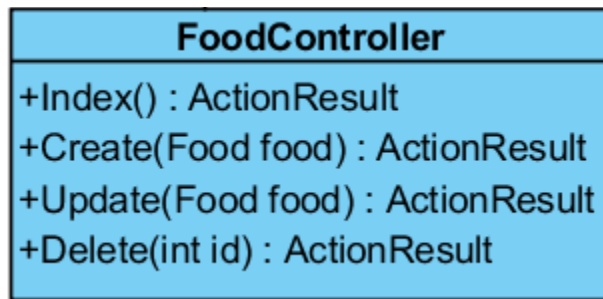**4.3.1.4 CD04: FoodsController**

Figure 6: CD04: FoodsController

Description: This class is controller for nutritionists need to go to a nutritionists management page for manage the foods. Such as create new food, update food or delete food.

Method:

ID	Name	Description	Access modifiers	Parameter	Return Type
1	Index()	This method returns data from the database.	public	-	ActionResult
2	Create()	For nutritionists can create new food to the system. return	public	Food food	ActionResult
3	Update()	For nutritionists can update or edit food in the system. return	public	Food food	ActionResult
4	Delete()	For nutritionists can delete food from the system. return	public	int? id	ActionResult

Table 4: Method of CD04: FoodsController

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4.3.1.5 CD05: ExercisesController

ExercisesController

+Index() : ActionResult
+Create(Exercises exercises) : ActionResult
+Update(Exercises exercises) : ActionResult
+Delete(int id) : ActionResult

Figure 7: CD05: ExercisesController

Description: This class is controller for doctor/nurse need to go to activity management page for manage the activity. Such as create new activity, update activity or delete activity.

Method:

ID	Name	Description	Access modifiers	Parameter	Return Type
1	Index()	This method returns data from the database.	public	-	ActionResult
2	Create()	For nutritionists can create new activity to the system.	public	Exercises exercises	ActionResult
3	Update()	For nutritionists can update or edit activity in the system.	public	Exercises exercises	ActionResult
4	Delete()	For nutritionists can delete activity from the system.	public	int? id	ActionResult

Table 5: Method of CD05: ExercisesController

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4.3.1.6 CD06: RegisterViewModel

Figure 8: CD06: RegisterViewModel

Description: This class is class that inherits from class UserProfileInfoModel and class UserAddressModel. For extend model to correspond to table "Asp Net User" and "Address" in the database.

Attribute:

ID	Name	Description	Access modifiers	Return Type
1	Username	The attribute "Username" can contain a get accessor, a set accessor the Usernamedata on table "Asp Net User" in the database.	public	-
2	Email	The attribute "Email" can contain a get accessor, a set accessor the email data on table "Asp Net User" in the database.	public	-
3	Password	The attribute "Password" can contain a get accessor, a set accessor the password data on table "Asp Net User" in the database.	public	-
4	ConfirmPassword	The attribute "ConfirmPassword" can contain a get accessor, a set accessor the confirm password data on table "Asp Net User" in the database.	public	-

5	Firstname	The attribute "Firstname" can contain a get accessor, a set accessor the first name data on table "Asp Net User" in the database.	public	-
6	Lastname	The attribute "Lastname" can contain a get accessor, a set accessor the last name data on table "Asp Net User" in the database.	public	-
7	age	The attribute "age" can contain a get accessor, a set accessor the agedata on table "Asp Net User" in the database.	public	-
8	weight	The attribute "weight" can contain a get accessor, a set accessor the weight data on table "Asp Net User" in the database.	public	-
9	height	The attribute "height" can contain a get accessor, a set accessor the height data on table "Asp Net User" in the database.	public	-
10	gender	The attribute "gender" can contain a get accessor, a set accessor the gender data on table "Asp Net User" in the database.	public	-
11	address	The attribute "address" can contain a get accessor, a set accessor the address data on table "Address" in the database.	public	-
12	city	The attribute "city" can contain a get accessor, a set accessor the city data on table "Address" in the database.	public	-
13	Zipcode	The attribute "Zipcode" can contain a get accessor, a set accessor the city code data on table "Address" in the database.	public	-
14	DiabetesType	The attribute "DiabetesType" can contain a get accessor, a set accessor the diabetes type data on table "Asp Net User" in the database.	public	-
15	StartTreatment	The attribute "StartTreatment" can contain a get accessor, a set accessor the start treatment data on table "Asp Net User" in the database.	public	-

Table 6: Method of CD06: RegisterViewModel
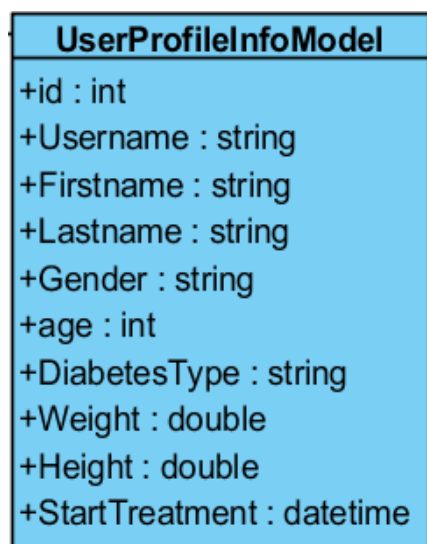
4.3.1.7 CD07: UserProfileInfoModel

Figure 9: CD07: UserProfileInfoModel

Description: This class is extend model to correspond to table "Asp Net User" in the database

Attribute:

ID	Name	Description	Access modifiers	Return Type
1	id	The attribute "id" can contain a get accessor, a set accessor the data id of user info on table "Asp Net User" in the database.	public	-
2	Username	The attribute "Username" can contain a get accessor, a set accessor the Username data on table "Asp Net User" in the database.	public	-
3	Firstname	The attribute "Firstname" can contain a get accessor, a set accessor the first name data on table "Asp Net User" in the database.	public	-
4	Lastname	The attribute "Lastname" can contain a get accessor, a set accessor the last name data on table "Asp Net User" in the database.	public	-

5	age	The attribute "age" can contain a get accessor, a set accessor the agedata on table "Asp Net User" in the database.	public	-
6	weight	The attribute "weight" can contain a get accessor, a set accessor the weight data on table "Asp Net User" in the database.	public	-
7	height	The attribute "height" can contain a get accessor, a set accessor the height data on table "Asp Net User" in the database.	public	-
8	gender	The attribute "gender" can contain a get accessor, a set accessor the gender data on table "Asp Net User" in the database.	public	-
9	DiabetesType	The attribute "DiabetesType" can contain a get accessor, a set accessor the diabetes type data on table "Asp Net User" in the database.	public	-
10	StartTreatment	The attribute "StartTreatment" can contain a get accessor, a set accessor the start treatment data on table "Asp Net User" in the database.	public	-

Table 7: Method of CD07: UserProfileInfoModel

4.3.1.8 CD08: UserAddressModel

UserAddressModel
+id : int
+Address : string
+City : string
+Zipcode : int
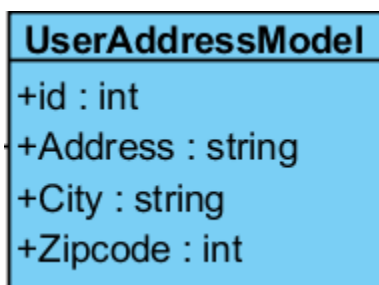
Figure 10: CD08: UserAddressModel

Description: This class is extend model to correspond to table "Address" in the database

Attribute:

ID	Name	Description	Access modifiers	Return Type
1	id	The attribute "id" can contain a get accessor, a set accessor the data id of user address on table "Address" in the database.	public	-
2	address	The attribute "address" can contain a get accessor, a set accessor the address data on table "Address" in the database.	public	-
3	city	The attribute "city" can contain a get accessor, a set accessor the city data on table "Address" in the database.	public	-
4	Zipcode	The attribute "Zipcode" can contain a get accessor, a set accessor the city code data on table "Address" in the database.	public	-

Table 8: Method of CD08: UserAddressModel

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4.3.1.9 CD09: EpandedUserDTO
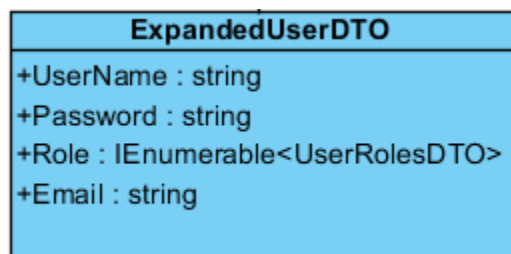
Figure 11: CD09: EpandedUserDTO

Description: This class is extend model to correspond to table "AdminManageUser" in the database

Attribute:

ID	Name	Description	Access modifiers	Return Type
1	UserName	The attribute "UserName" can contain a get accessor, a set accessor the data of username of user.	public	-
2	Password	The attribute "Password" can contain a get accessor, a set accessor the data of password of user .	public	-
3	Role	The attribute "Role" can contain a get accessor, a set accessor the data of role name from table role on the database	public	-
4	Email	The attribute "Email" can contain a get accessor, a set accessor the data of last name of user .	public	-

Table 9: Method of CD09: EpandedUserDTO

4.3.1.10 CD010: ChangePasswordModel
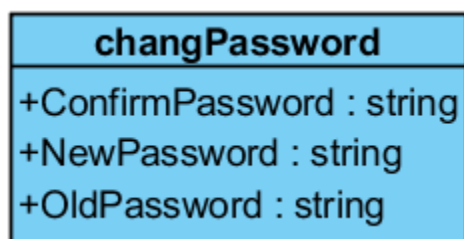
Figure 12: CD10: ChangePasswordModel

Description: This class is extend model to correspond to table "Asp Net User" in the database

Attribute:

ID	Name	Description	Access modifiers	Return Type
1	ConfirmPassword	The attribute "ConfirmPassword" can contain a get accessor, a set accessor the data of new password of user on table "Asp Net User" in the database. For validate new password and confirm password is same.	public	-
2	NewPassword	The attribute "NewPassword" can contain a get accessor, a set accessor the data of new password of user on table "Asp Net User" in the database.	public	-
3	OldPassword	The attribute "OldPassword" can contain a get accessor and set validate the data of current password of user on table "Asp Net User" in the database.	public	-

Table 10: Method of CD10: ChangePasswordModel

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4.3.1.11 CD11: ExercisesModel
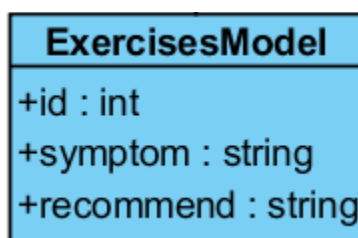
Figure 13: CD11: ExercisesModel

Description: This class is extend model to correspond to table "Activity" in the database

Attribute:

ID	Name	Description	Access modifiers	Return Type
1	id	The attribute "id" can contain a get accessor, a set accessor the data id of activity on table "Activity" in the database.	public	-
2	symptom	The attribute "symptom" can contain a get accessor, a set accessor the symptom data on table "Activity" in the database.	public	-
3	recommend	The attribute "recommend" can contain a get accessor, a set accessor the recommend data on table "Activity" in the database.	public	-

Table 11: Method of CD12: ExercisesModel

4.3.1.12CD12: FoodModel
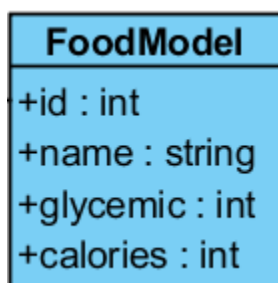
Figure 14: CD12: FoodModel

Description: This class is extend model to correspond to table "Food" in the database

Attribute:

ID	Name	Description	Access modifiers	Return Type
1	id	The attribute "id" can contain a get accessor, a set accessor the data id of food on table "Food" in the database.	public	-
2	name	The attribute "name" can contain a get accessor, a set accessor the data of name of food on table "Food" in the database.	public	-
3	glycemic	The attribute "glycemic" can contain a get accessor, a set accessor the data of glycemic of food on table "Food" in the database.	public	-
4	calories	The attribute "calories" can contain a get accessor, a set accessor the data of calories of food on table "Food" in the database.	public	-

Table 12: Method of CD12: FoodModel

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4.3.1.13 CD13: LoginViewModel
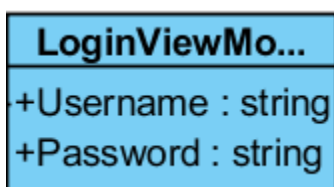
Figure 15: CD13: LoginViewModel

Description: This class is extend model to correspond to table "Asp Net User" in the database

Attribute:

ID	Name	Description	Access modifiers	Return Type
1	Username	The attribute "Username" can contain a get accessor, a set accessor the Username data on table "Asp Net User" in the database. For validate username.	public	-
2	Password	The attribute "Password" can contain a get accessor, a set accessor the data of password of user on table "Asp Net User" in the database. For validate password.	public	-

Table 13: Method of CD013: LoginViewModel

4.3.1.14 CD14: MedicineModel
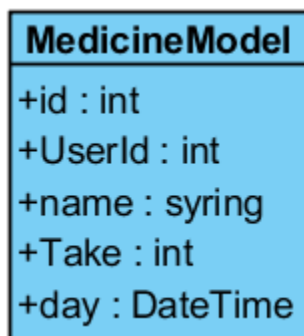
Figure 16: CD14: MedicineModel

Description: This class is extend model to correspond to table "Medicine" in the database

Attribute:

ID	Name	Description	Access modifiers	Return Type
1	id	The attribute "id" can contain a get accessor, a set accessor the data id of medicine on table "Medicine" in the database.	public	-
2	UserId	The attribute "UserId" can contain a get accessor, a set accessor the data id of user on table "Medicine" in the database.	public	-
3	name	The attribute "name" can contain a get accessor, a set accessor the data of name of medicine on table "Medicine" in the database.	public	-
4	Take	The attribute "Tale" can contain a get accessor, a set accessor the data on table "Medicine" in the database.	public	-
5	day	The attribute "day" can contain a get accessor, a set accessor the data of date of medicine on table "Medicine" in the database.	public	-

Table 14: Method of CD14: MedicineModel

4.3.1.15 CD15: TodayFoodModel
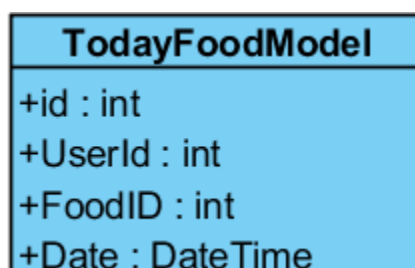
Figure 17: CD15: TodayFoodModel

Description: This class is extend model to correspond to table "TodayFood" in the database

Attribute:

ID	Name	Description	Access modifiers	Return Type
1	id	The attribute "id" can contain a get accessor, a set accessor the data id of today food on table "TodayFood" in the database.	public	-
2	UserId	The attribute "UserId" can contain a get accessor, a set accessor the data id of user on table "TodayFood" in the database.	public	-
3	FoodID	The attribute "FoodID" can contain a get accessor, a set accessor the data id of food from the table "Food" to table "TodayFood" in the database.	public	-
4	Date	The attribute "Date" can contain a get accessor, a set accessor the data of date on table "TodayFood" in the database.	public	-

Table 15: Method of CD15: TodayFoodModel

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4.3.1.16 CD16: UserFoodModel
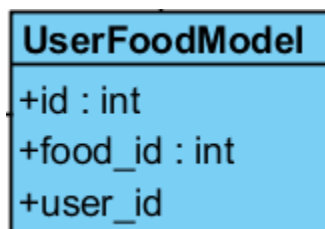
Figure 16: CD16: UserFoodModel

Description: This class is extend model to correspond to table "UserFood" in the database

Attribute:

ID	Name	Description	Access modifiers	Return Type
1	Id	The attribute "id" can contain a get accessor, a set accessor the data id of today food on table "UserFood" in the database.	public	-
2	user_id	The attribute "user_id" can contain a get accessor, a set accessor the data id of user on table "UserFood" in the database.	public	-
3	food_id	The attribute "food_id" can contain a get accessor, a set accessor the data id of food from the table "Food" to table "UserFood" in the database.	public	-

Table 16: Method of CD16: UserFoodModel

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4.3.1.17 CD17: UserGlycemicModel
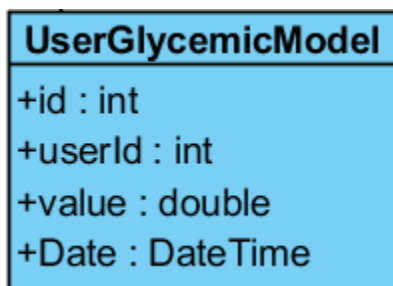
Figure 19: CD17: UserGlycemicModel

Description: This class is extend model to correspond to table "UserGlycemic" in the database

Attribute:

ID	Name	Description	Access modifiers	Return Type
1	Id	The attribute "id" can contain a get accessor, a set accessor the data id of glycemic index of user on table "UserGlycemic" in the database.	public	-
2	userId	The attribute "userId" can contain a get accessor, a set accessor the data id of user on table "UserGlycemic" in the database.	public	-
3	value	The attribute "value" can contain a get accessor, a set accessor the data of glycemic value on table "UserGlycemic" in the database.	public	-
4	Date	The attribute "Date" can contain a get accessor, a set accessor the data of date on table "UserGlycemic" in the database.	public	-

Table 18: Method of CD18: UserGlycemicModel

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4.3.1.18 CD18: UserComplicationn
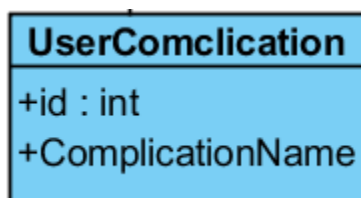
Figure 20: CD18: UserComplication

Description: This class is extend model to correspond to table "UserComplication" in the database

Attribute:

ID	Name	Description	Access modifiers	Return Type
1	id	The attribute "id" can contain a get accessor, a set accessor the data id of complication disease of user on table "UserComplication" in the database.	public	-
2	ComplicationName	The attribute "ComplicationName" can contain a get accessor, a set accessor the data name of complication disease on table "UserComplication" in the database.	public	-

Table 19: Method of CD19: UserComplication

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4.3.1.19 CD19: RolesDTO
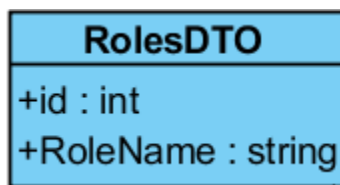
Figure 21: CD19: RolesDTO

Description: This class is extend model to correspond to table "AspRole" in the database

Attribute:

ID	Name	Description	Access modifiers	Return Type
1	id	The attribute "id" can contain a get accessor, a set accessor the data id of role on the database.	public	-
2	RoleName	The attribute "RoleName" can contain a get accessor, a set accessor the data name of role on the database.	public	-

Table 19: Method of CD19: RolesDTO

4.3.1.20 CD20: UserRoleDTO
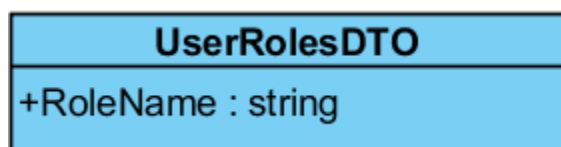
Figure 22: CD20: UserRoleDTO

Description: This class is extend model to correspond to table "UserComplication" in the database

Attribute:

ID	Name	Description	Access modifiers	Return Type
1	RoleNameDTO	The attribute "RoleName" can contain a get accessor, a set accessor the data name of role disease on the database.	public	-

Table 20: Method of CD20: UserRoleDTO

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4.3.2 Sequence Diagram

4.3.2.1 SD01: Registration.
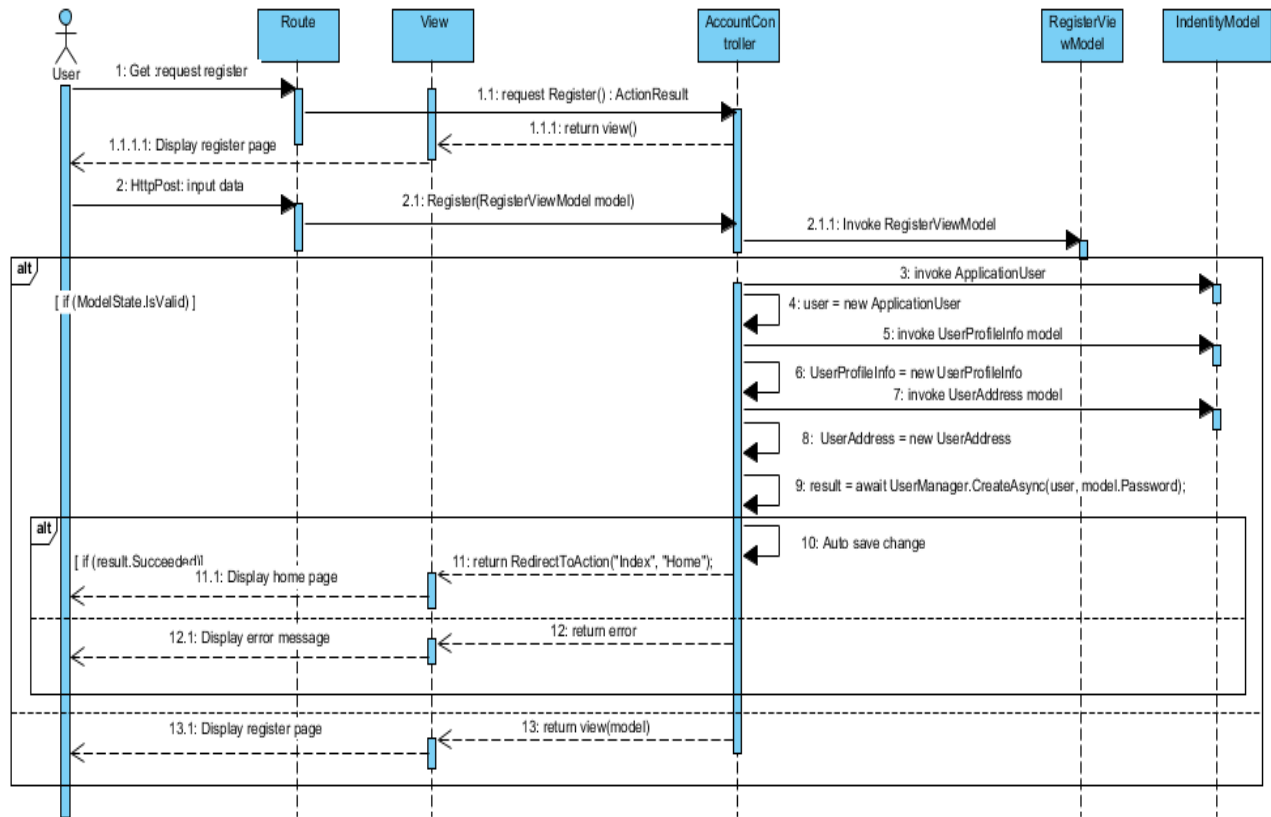
Figure 23: SD01: Registration.

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4.3.2.2 SD02: Login.
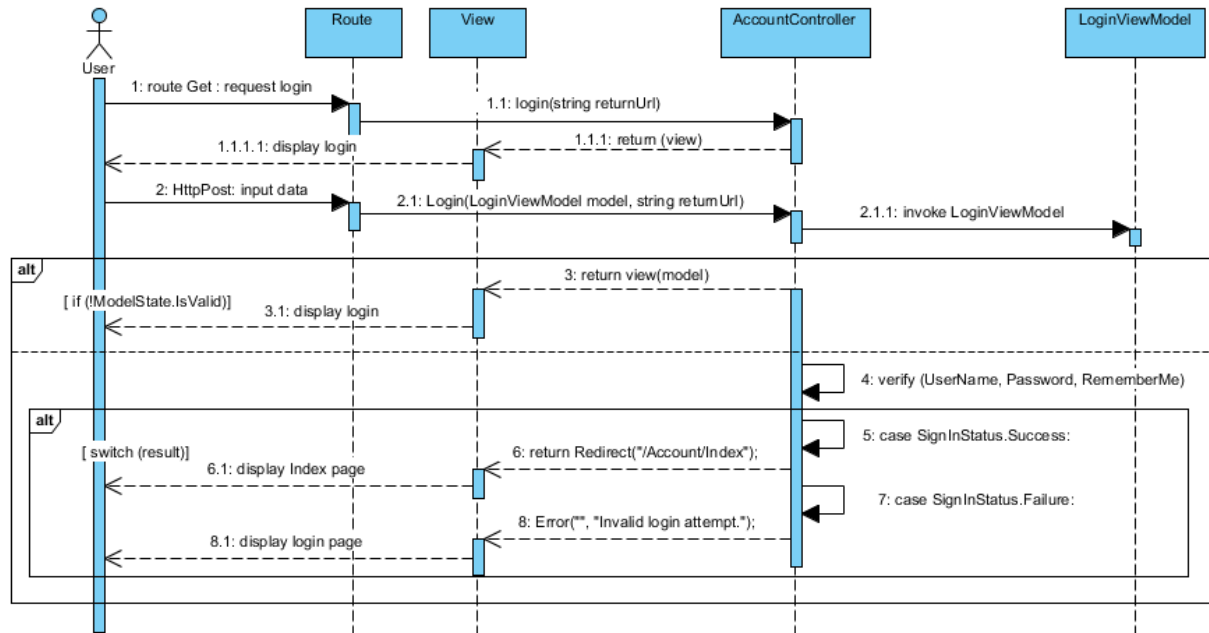
Figure 24: SD02: Login.
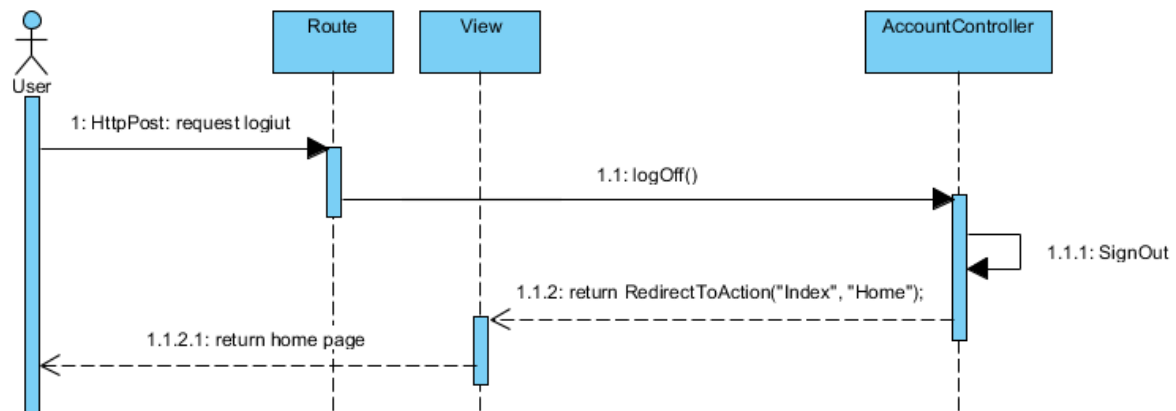
4.3.2.3 SD03: Logout.

Figure 25: SD03: Logout.

4.3.2.4 SD04: View user profile.
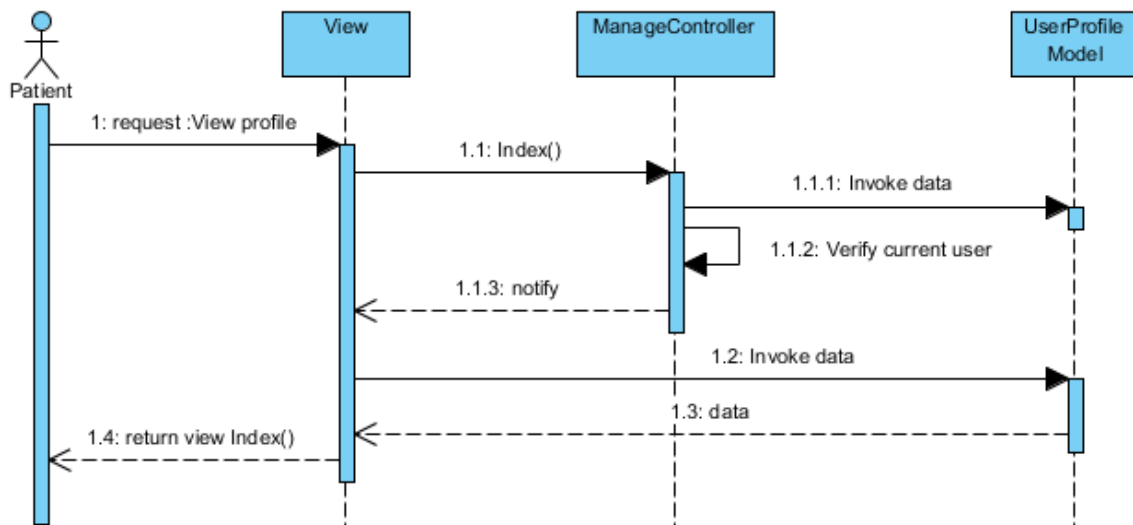
Figure 26: SD04: View user profile.

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4.3.2.5 SD05: Edit user profile.
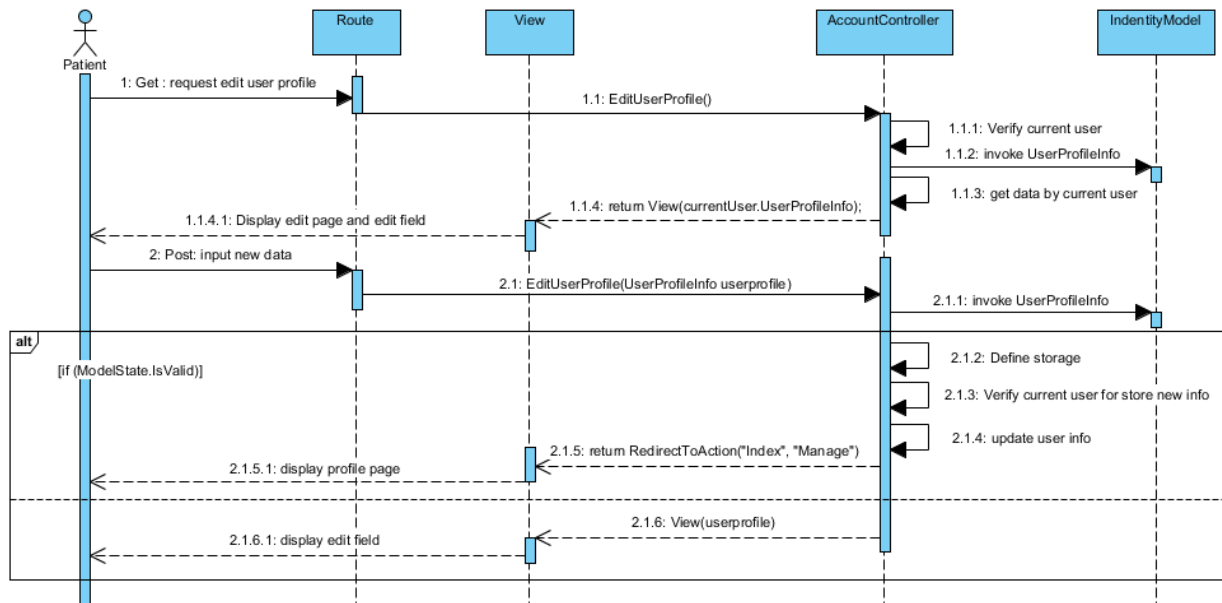
Figure 27: SD05: Edit user profile.

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4.3.2.6 SD06: Change password
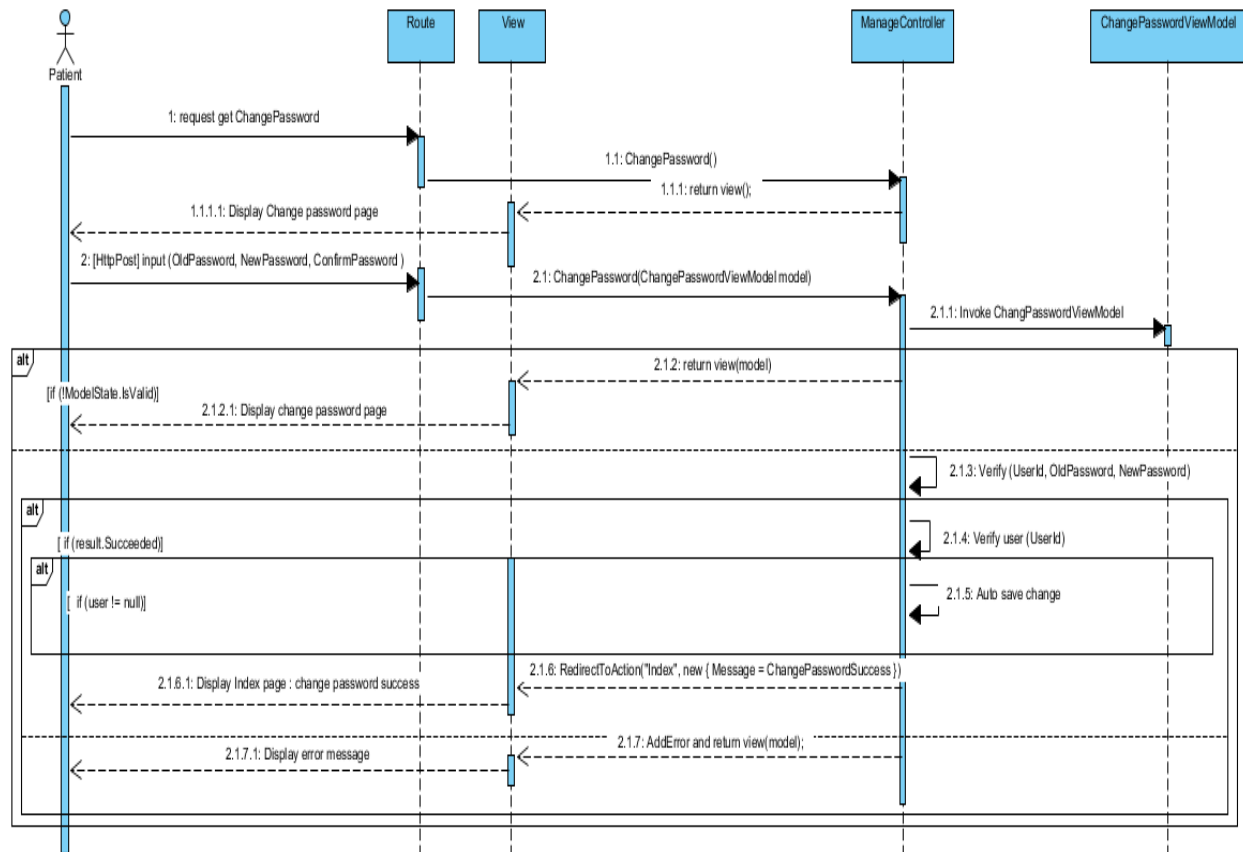
Figure 28: SD06: Change password

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4.3.2.7 SD07: Create new food
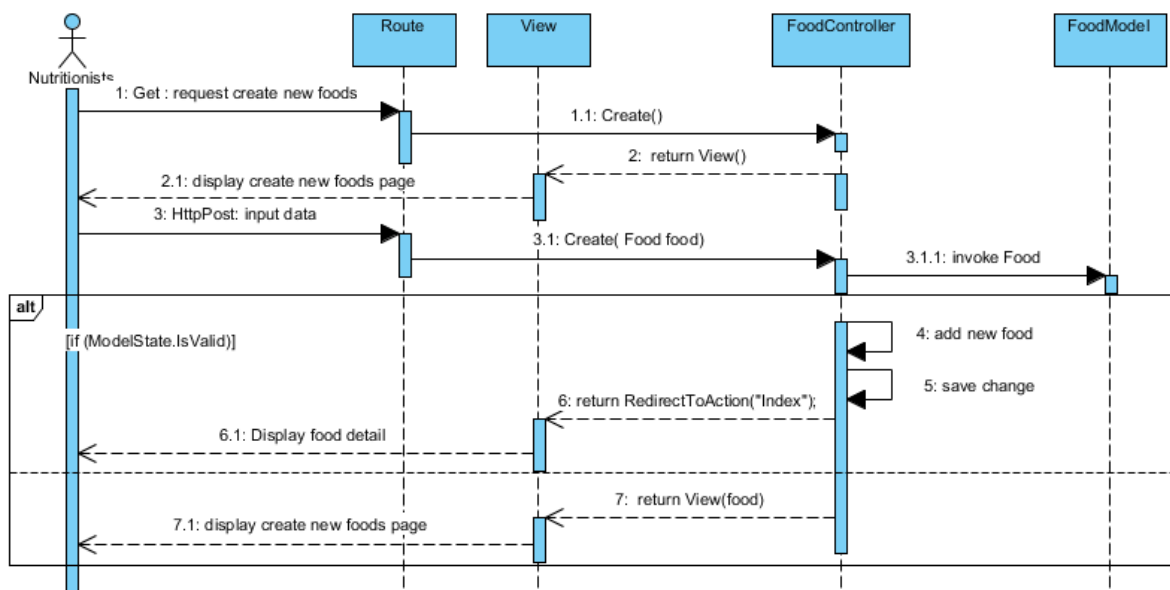
Figure 29: SD07: Create new food

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3.2.8 SD08: Edit food info
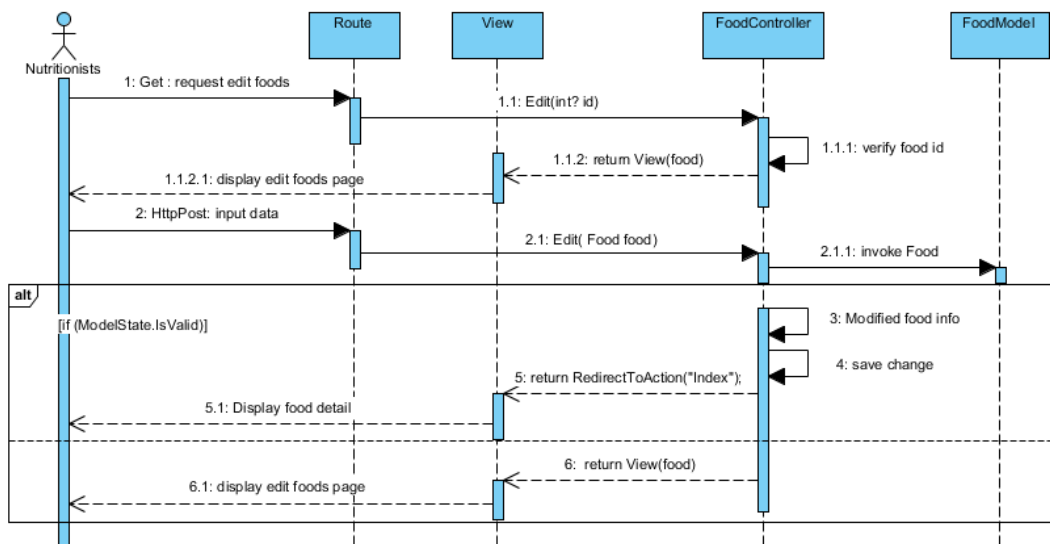
Figure 30: SD08: Edit food info

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4.3.2.9 SD09: Delete food
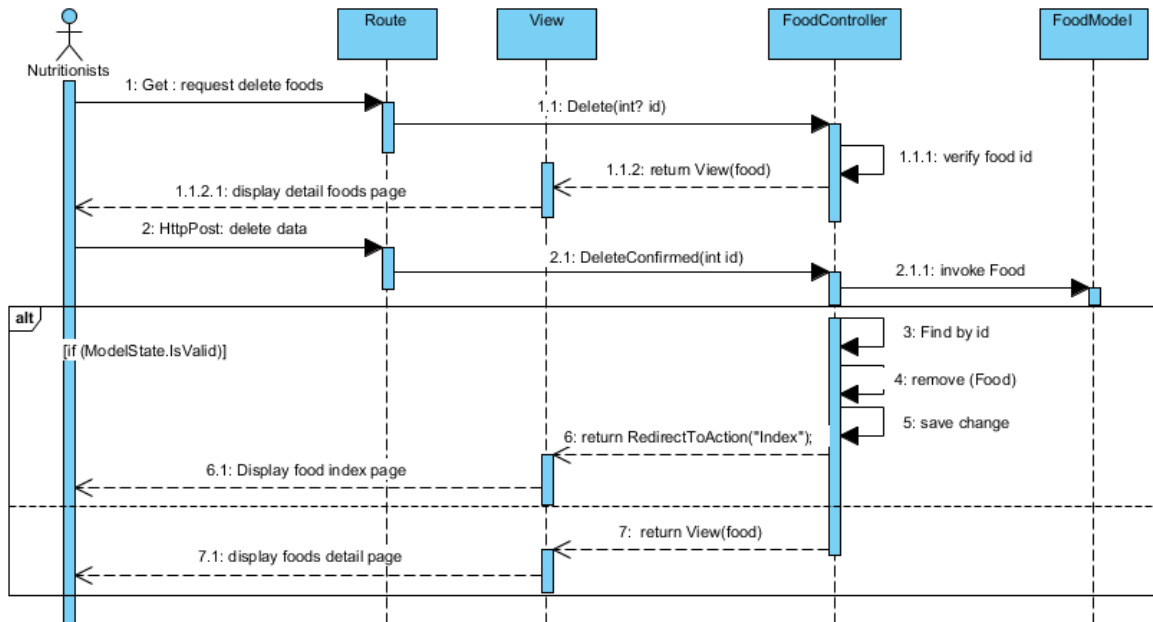
Figure 31: SD09: Delete food

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4.3.2.10 SD10: Add activity
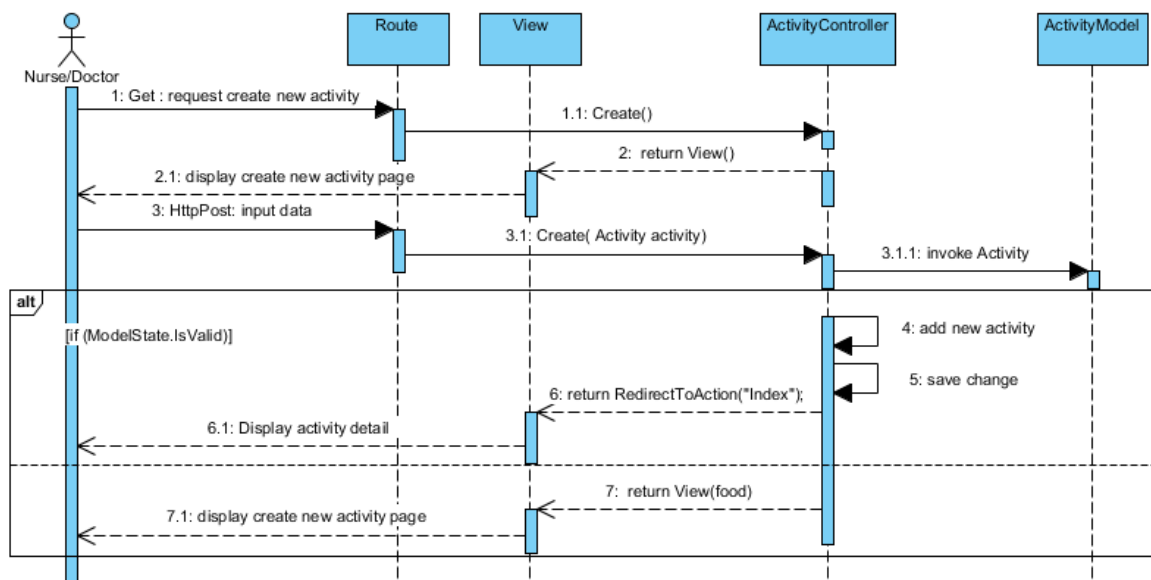
Figure 32: SD010: Add activity

4.3.2.11 SD11: Edit activity
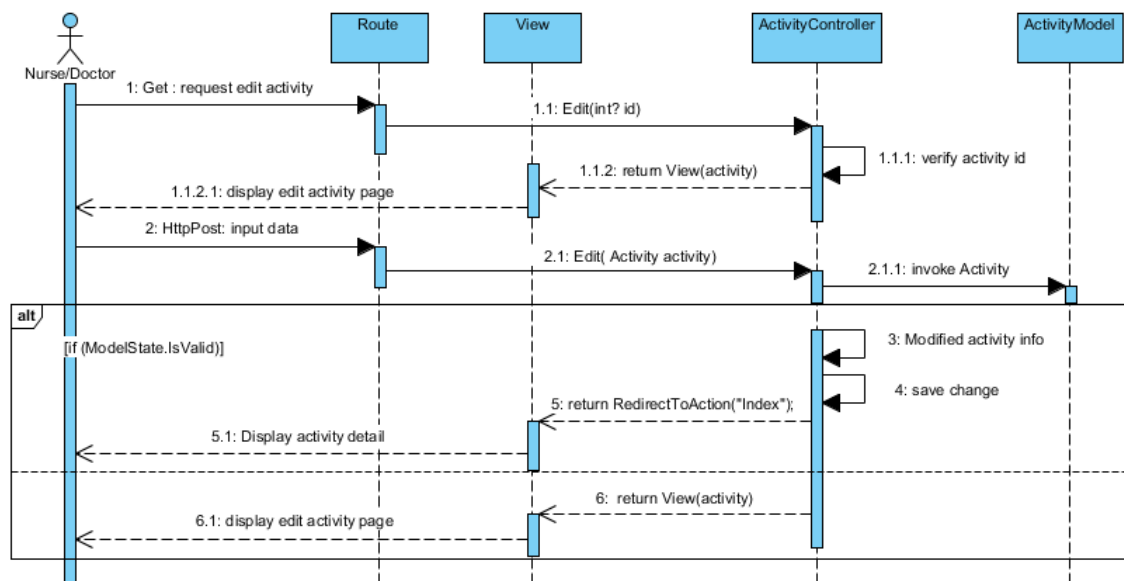
Figure 33: SD11: Edit activity

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4.3.2.12 SD12: Delete activity
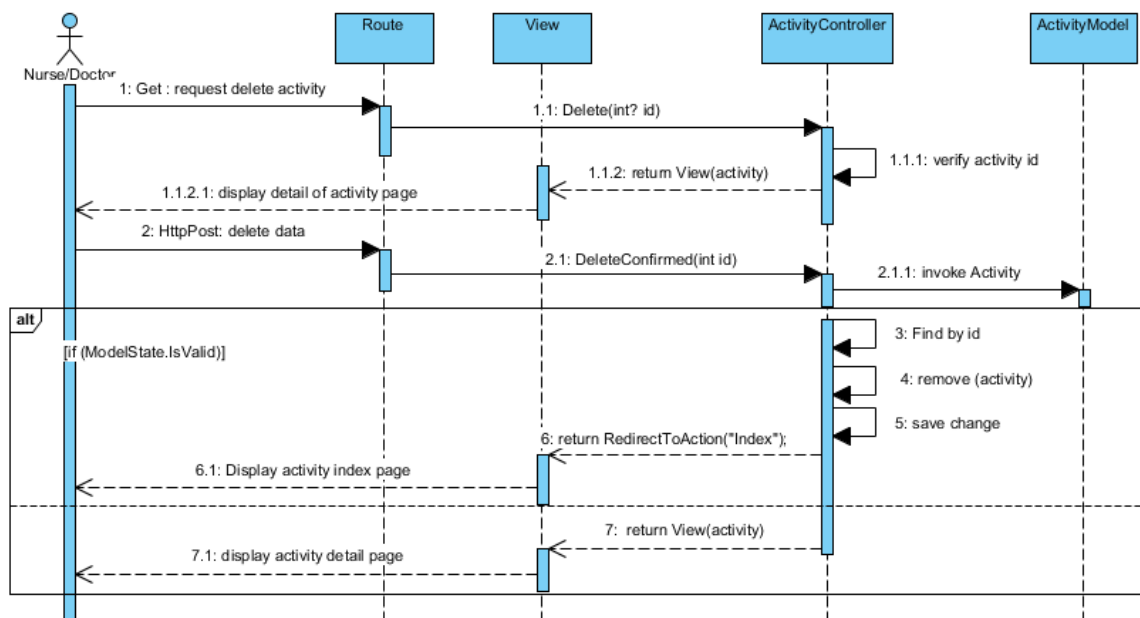
Figure 34: SD12: Delete activity

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4.3.2.13 SD13: Admin create new user.
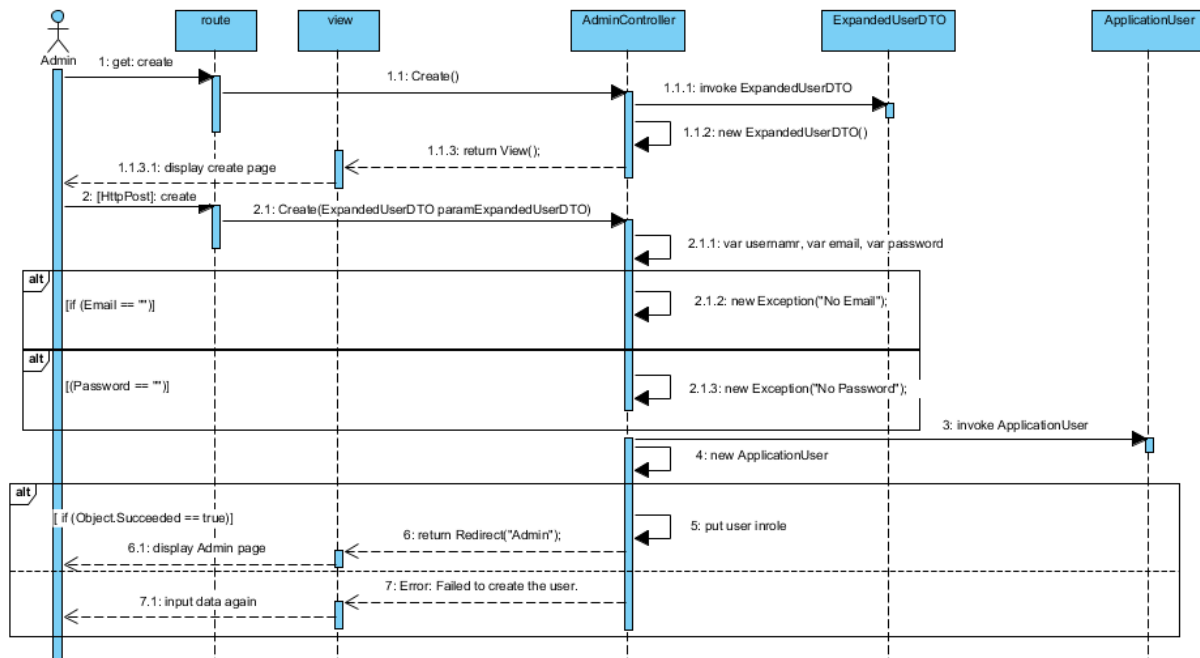
Figure 35: SD13: Admin create new user.

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4.3.2.14 SD14: Admin edit user info.
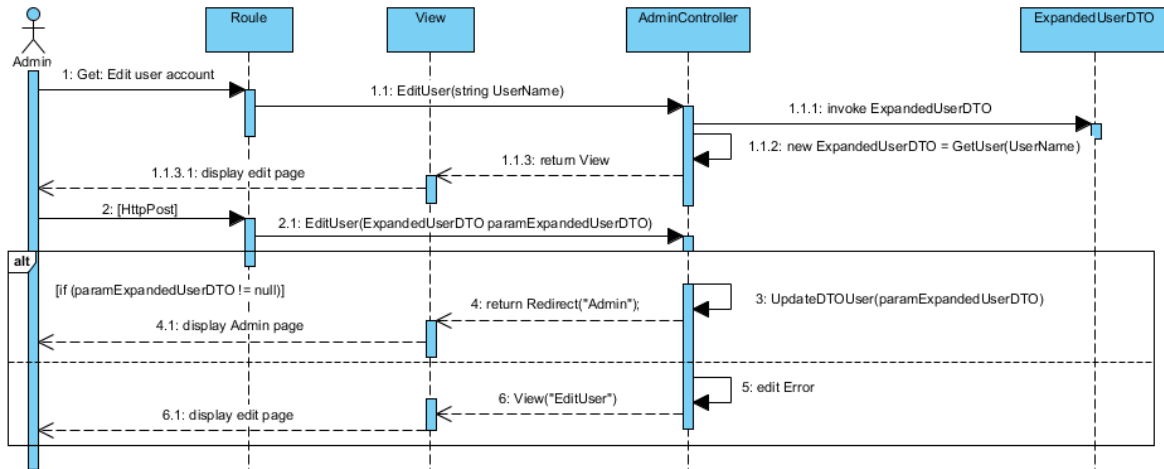
Figure 36: SD14: Admin edit user info.

4.3.2.15 SD15: Delete user
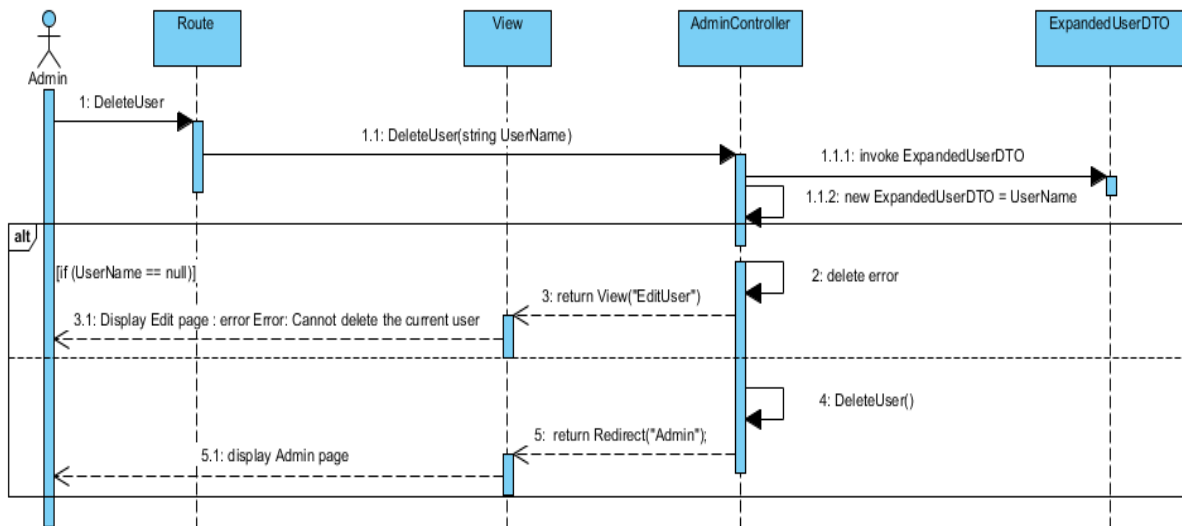
Figure 37: SD15: Delete user

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4.3.2.16 SD16: Add food to health plan.
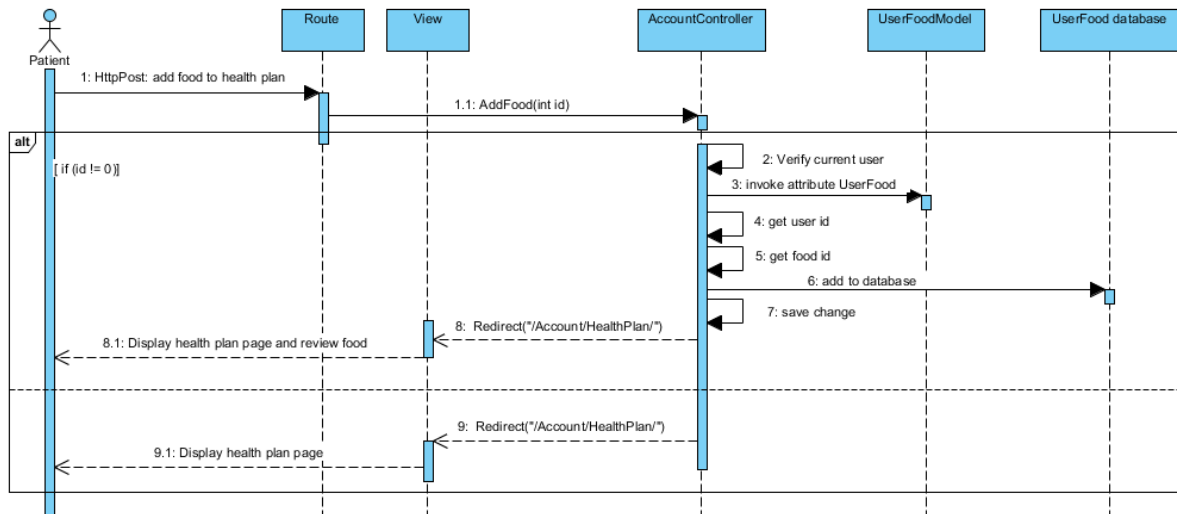
Figure 38: SD16: Add food to health plan.

4.3.2.17 SD17: Delete food from health plan.
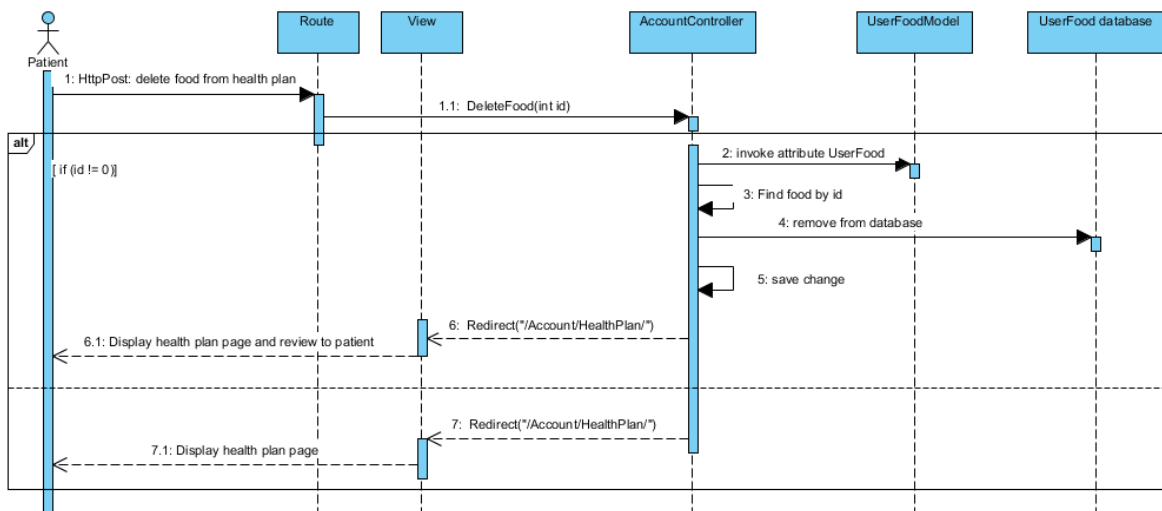
Figure 39: SD17: Delete food from health plan.

4.3.2.18 SD18: View BMI, BMR.
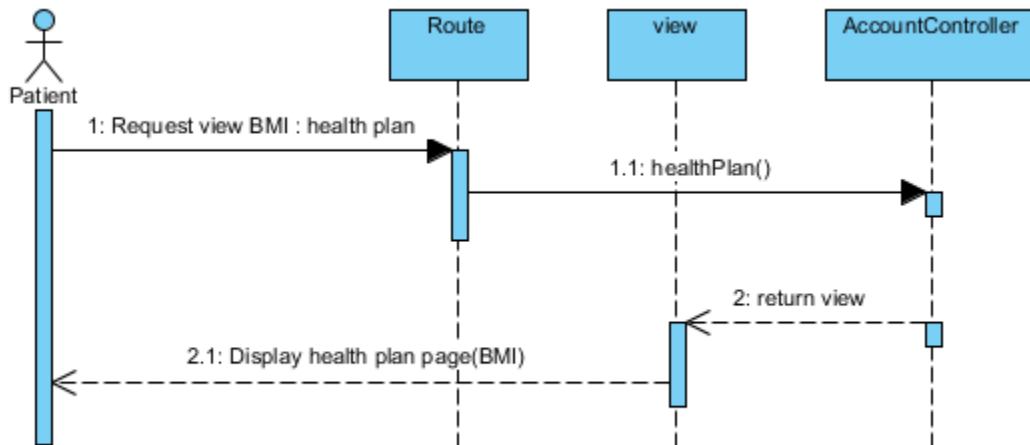
Figure 40: SD18: View BMI.

4.3.2.19 SD19: Add blood sugar.
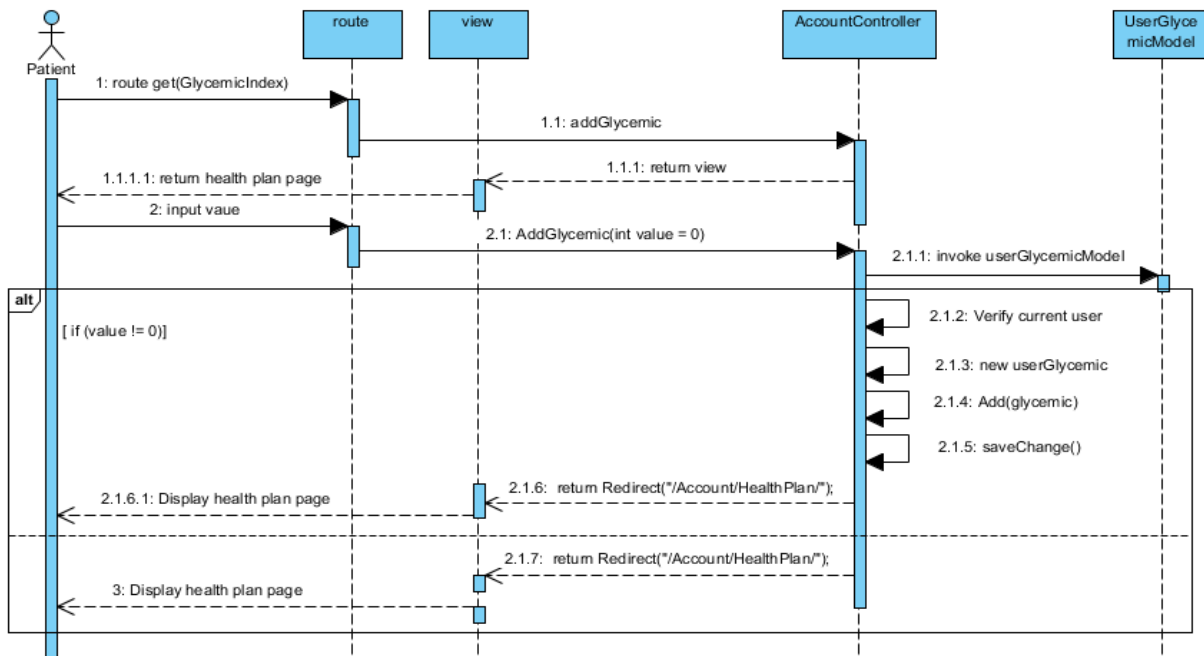
Figure 41: SD19: Add blood sugar.

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4.3.2.20 SD20: View blood sugar on graph.
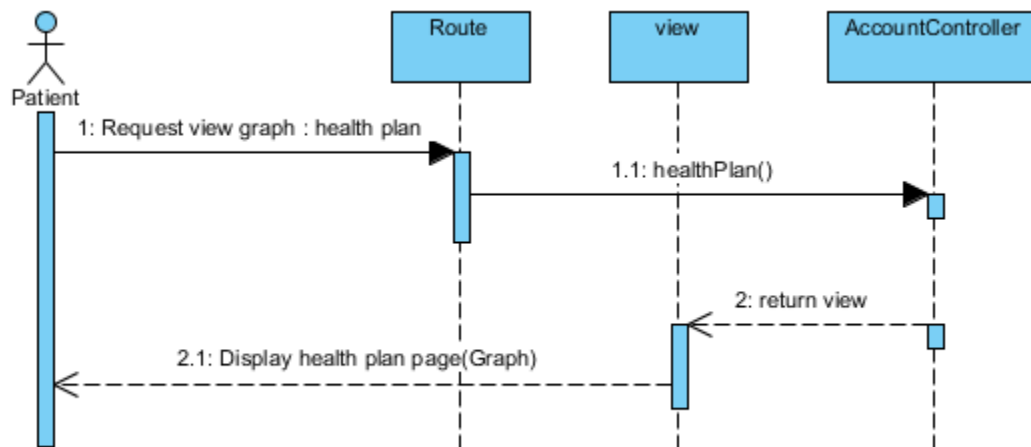
Figure 42:SD020:   View blood sugar on graph.

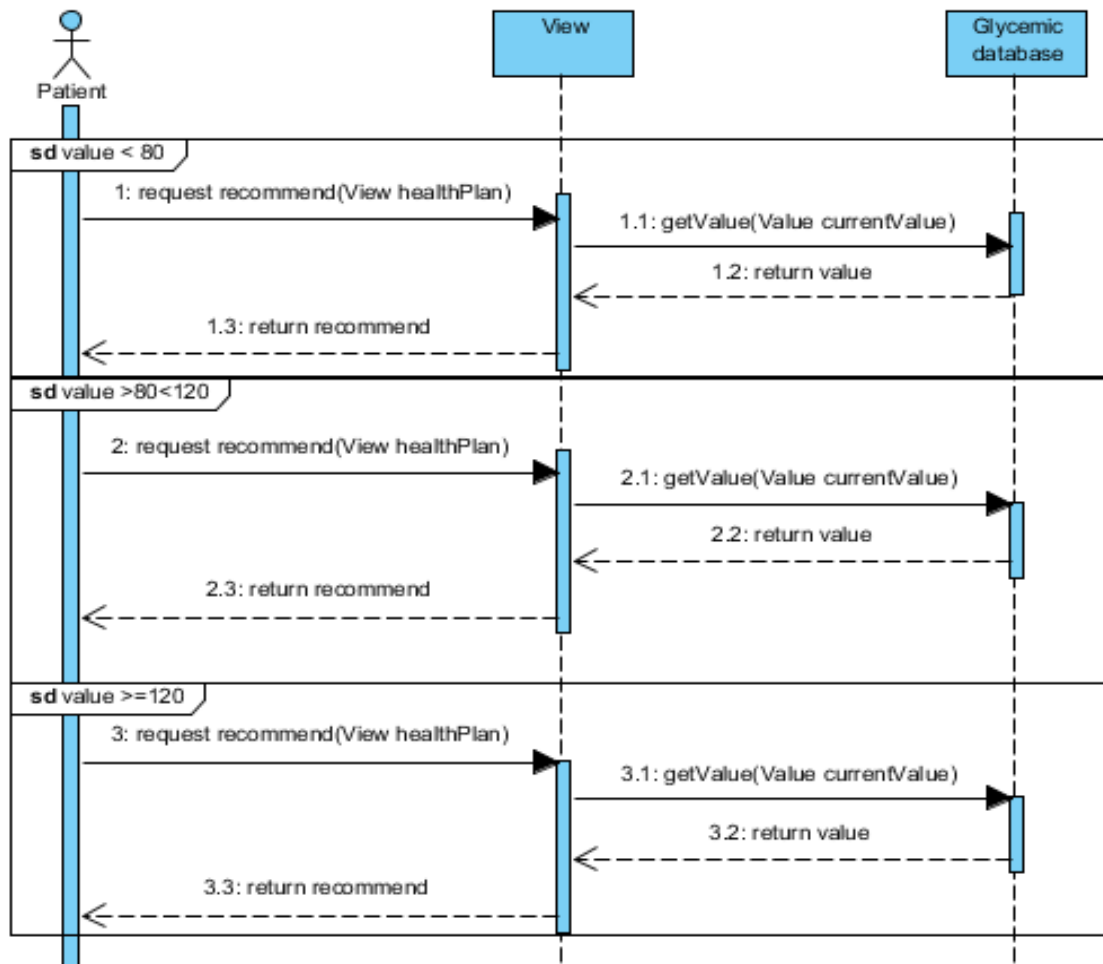| Document Name	Diabetes -SDD-V.0.2.docx	Owner	Jirayu	Page	50 / 73
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4.3.2.21 SD21: Get recommend about blood sugar.

Figure 43:SD021: Get recommend about blood sugar.

4.3.3 User Interface.

4.3.3.1 Login

Figure 44:UI01: login.

4.3.3.2 Logout
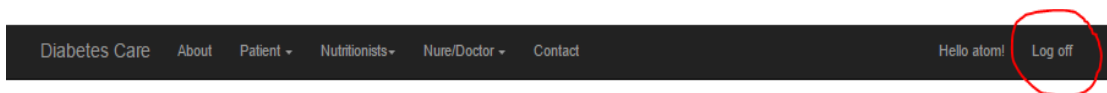
Figure 45:UI02: logout.

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4.3.3.3 Registration

Figure 46:UI03: Registration.

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4.3.3.4 User profile.

Figure 47:UI04: User profile.

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4.3.3.5 Edit user profile.

Figure 48:UI05: Edit profile.

4.3.3.6 Change password.

Figure 49:UI06: Chang password.

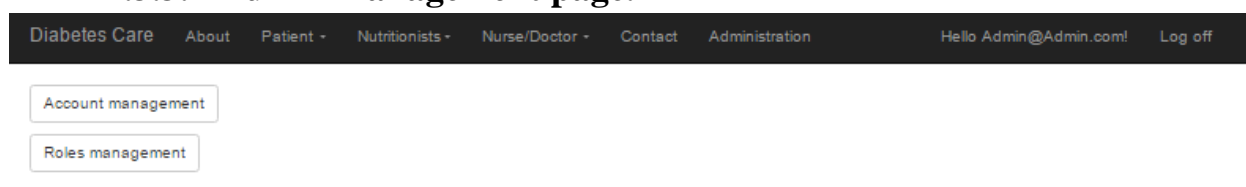| Document Name	Diabetes -SDD-V.0.2.docx	Owner	Jirayu	Page	55 / 73
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4.3.3.7 Admin management page.

Figure 50:UI07: Admin management page.

4.3.3.8 Admin manage account page.

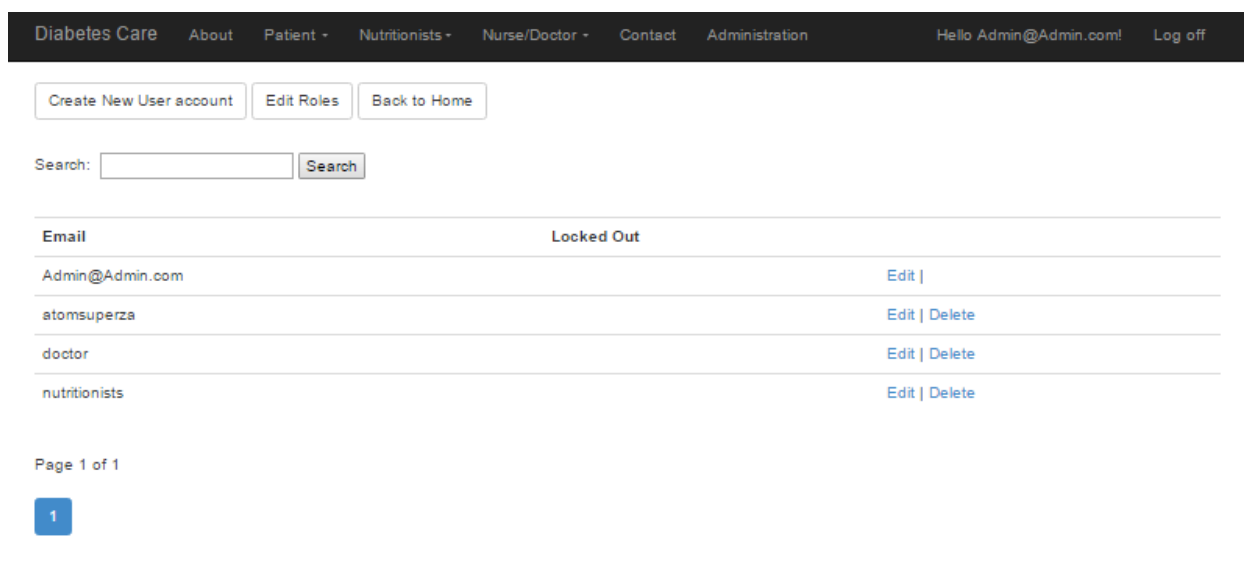Figure 51:UI08: Admin manage account page.

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4.3.3.9 Create new food.

Figure 52:UI09: create new food.

4.3.3.10 Edit food.

Figure 52:UI010: Edit food.

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4.3.3.11 Delete food.

food_name	food_Calories	food_GlycemicIndex	
banana	100	22	Edit	Details	Delete
ข้าวต้ม	80	50	Edit	Details	Delete

Figure 53:UI11: Delete food.

4.3.3.12 Health plan page.

Figure 54:UI12: Health plan page.

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4.3.3.13 Exercise management.

Figure 55:UI13: Exercise management.

4.3.3.14 Exercise management creates new.

Figure 56:UI14: Exercise management creates new.

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4.3.3.15 Exercise management edits.

Figure 57:UI15: Exercise management edit.

4.3.3.16 Exercise management deletes.

Figure 58:UI16: Exercise management delete.

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4.3.3.17 Behavior monitors system.

Figure 59:UI17: Behavior monitors system.

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Chapter Four | 4.4 Data Architecture

4.4.1 Entity Relationship Diagram
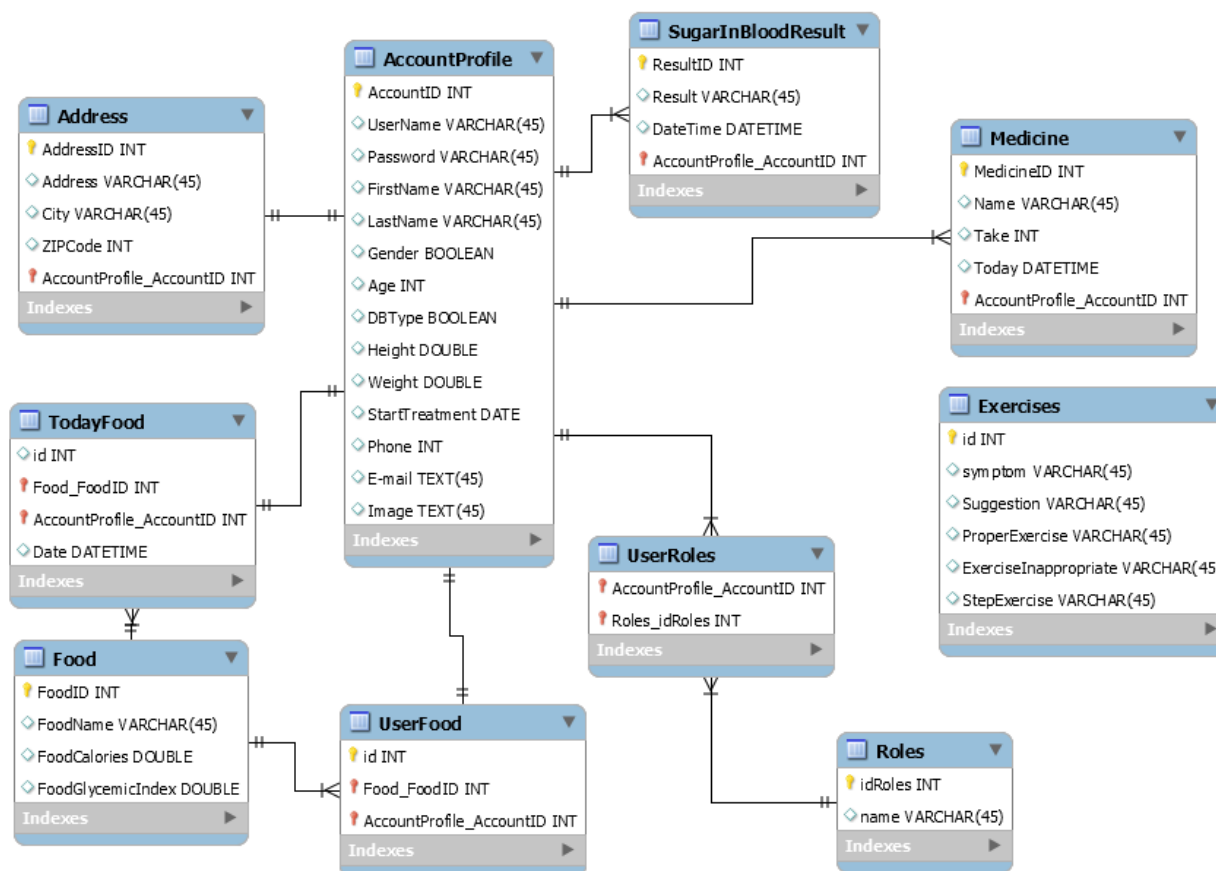
Figure 60: ER diagram

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4.4.2 Database Design

DB01 – AccountProfile
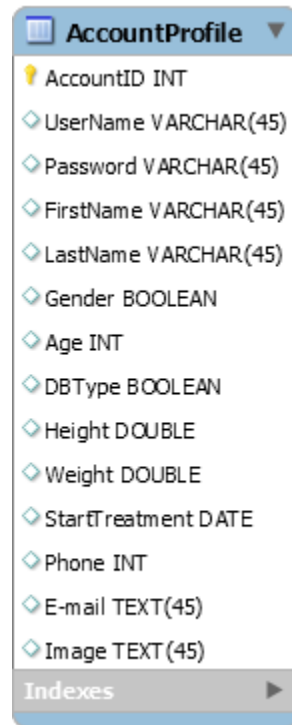
Figure 61: ER diagram: AccountProfile

Class: AccountProfile
Description: This table used for storing user's information to the web application.
Attributes description:

ID	Name	Description	Type
1	AccountId	Stored user id number	int
2	username	Stored username of user	varchar
3	email	Stored user email	varchar
4	password	Stored user password	varchar

5	FirstName	Stored user first name	varchar
6	LastName	Stored user last name	varchar
7	Gender	Stored user gender	varchar
8	Age	Stored user age	int
9	DBType	Stored user diabetes type	boolean
10	Height	Stored user height	double
11	Weight	Stored user weight	double
12	StartTreatment	Stored user start treatment	DateTime
13	PhoneNo.	Stored user phone number	int

Table 20: Description data of Class AccountProfile.
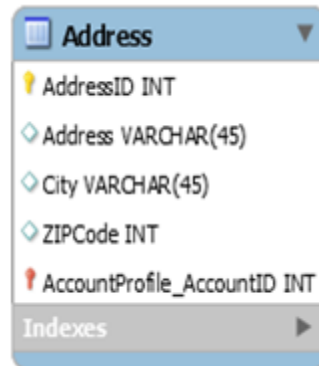
DB02 – Address

Figure 62: ER diagram: Address

Class: Address

Description: This table used for storing user's address to the web application.

Attributes description:

ID	Name	Description	Type
1	AddressId	Stored user address id number	int
2	address	Stored address of user	varchar
3	city	Stored city of user	varchar
4	ZipCode	Stored the number of zip code	int

Table 21 : Description data of Class Address.

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DB03 – Food
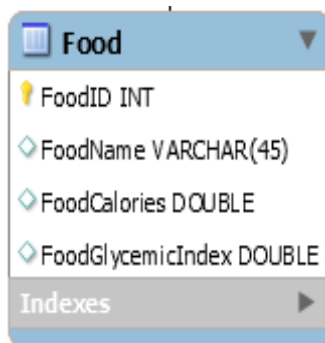
Figure 63: ER diagram: Food

Class: Food

Description: This table used for storing data of foods to the web application.

Attributes description:

ID	Name	Description	Type
1	foodID	Stored number of food id	int
2	FoodName	Stored the name of food on table "Food"	varchar
3	FoodCalories	Stored the calories of food on table "Food"	double
4	FoodGlycemicIndex	Stored the glycemic index of food on table "Food"	double

Table 22 : Description data of Class Food.

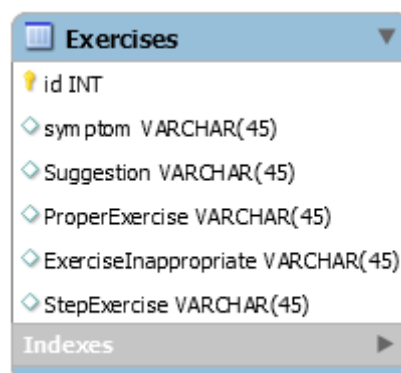### DB04 – Exercises

Figure 64: ER diagram: Exercises

Class: **Activity**
Description: This table used for storing data of activity to the web application.
Attributes description:

ID	Name	Description	Type
1	idactivity	Stored number of activity id	int
2	symptom	Stored the symptom of the body on table "Activity"	varchar
3	Suggestion	Stored the recommend from doctor about the exercise on table "Exercises"	varchar
4	ProperExercise	Stored the proper exercise on table "Exercises"	varchar
5	ExerciseInappropriate	Stored the exercise inappropriate on table "Exercises"	varchar
6	StepExercise	Stored the step exercise on table "Exercises"	varchar

Table 23: Description data of Class Activity.

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DB05 – SugarInBloodResult
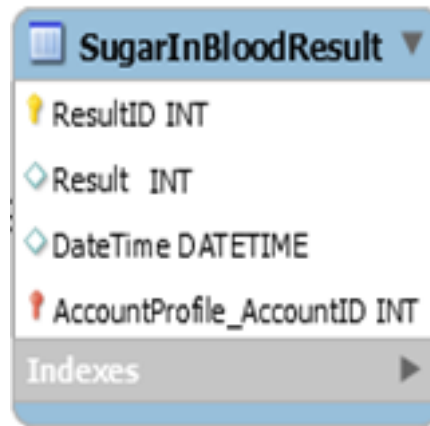
Figure 65: ER diagram: SugarInBloodResult

Class: **SugarInBloodResult**
Description: This table used for storing blood sugar value of user to the web application.
Attributes description:

ID	Name	Description	Type
1	ResultId	Stored id number of data	int
2	Result	Stored the value of blood sugar	int
3	DateTime	Stored date that user input data	DateTime

Table 24: Description data of Class SugarInBloodResult.

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DB06 – Medicine

Figure 66: ER diagram: Medicine

Class: Medicine

Description: This table used for storing the medicine of user to the web application.

Attributes description:

ID	Name	Description	Type
1	MedicineID	Stored id number of data.	int
2	Name	Stored the name of medicine.	varchar
3	Take	Stored amount of medicine that user take in each day.	int
4	Today	Stored date that user take the medicine.	datetime

Table 25: Description data of Class Medicine.
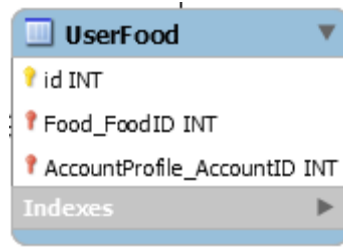
DB09 – UserFood

Figure 67: ER diagram : UserFood

Class: UserFood

Description: This table used for storing the id number of table food, accountProfile, and activity for syncing between class.

Attributes description:

ID	Name	Description	Type
1	id	Stored id number.	int
2	Food_FoodID	Stored id number of food from table "Food"	int
3	AccountProfile_AccountID	Stored id number of user from table "AccountProfile"	int

Table 28: Description data of Class Myplan

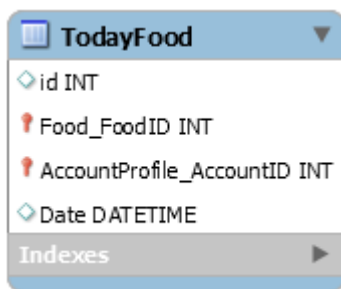| Document Name	Diabetes -SDD-V.0.2.docx	Owner	Jirayu	Page	70 / 73
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DB09 – TodayFood

Figure 68: ER diagram : TodayFood

Class: **TodayFood**

Description: This table used for storing the id number of table food, accountProfile, and activity for syncing between class.

Attributes description:

ID	Name	Description	Type
1	id	Stored id number.	int
2	Food_FoodID	Stored id number of food from table "Food"	int
3	AccountProfile_AccountID	Stored id number of user from table "AccountProfile"	int
4	Date	Stored date on table "TodayFood"	datetime

Table 28: Description data of Class TodayFood

DB09 – Roles

Figure 69: ER diagram : Roles

Class: Roles

Description: This table used for storing the id of roles and roles name.

Attributes description:

ID	Name	Description	Type
1	id	Stored id number.	int
2	name	Stored id number of food from table "Food"	int

Table 28: Description data of Class Roles
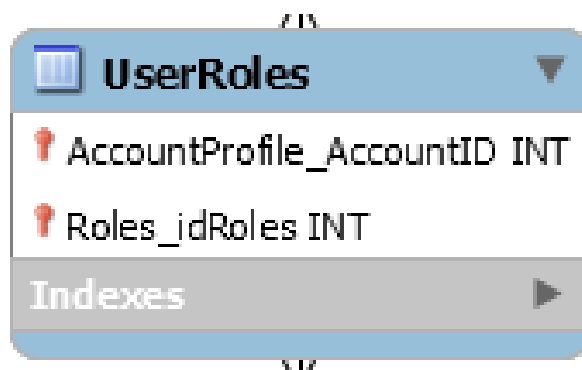
DB09 – UserRoles

Figure 70: ER diagram : UserRoles

Class: UserRoles

Description: This table used for storing the id number of account from table "Account" and id of roles name from table "Roles"

Attributes description:

ID	Name	Description	Type
1	accountProfile_AccountID	Stored id of user account from table "Account" on table "UserRoles"	int
2	Roles_idRoles	Stored id of roles name from table "Roles" on table "UserRoles"	int

Table 28: Description data of Class UserRoles

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