

Test plan for PIMS

This document contains the detailed listing of the test cases to be used to be used on Personal Investment management System (PIMS). These test cases are used for system level testing.

The basic operations present in the software are:

1. Installation and downloading of the current share values
2. GUI and display unit
3. Creation of profiles/transactions/securities
4. Editing of the current profiles/transactions/securities
5. Deletions
6. Displaying the data
7. Business Computations

Test cases are designed for all these operations. The report is organized in two parts. In first part, we give the test cases for all these operations. In the second part, we give the test cases for actual business scenario with suitable transactions.

PART- 1

1. Installation

Test case ID	Purpose	Steps	Expected Result
1	Installation of PIMS	Click on the PIMS installation program	System should ask the user for the home directory in which all the working files will be created. Along with that system should ask for the initial login and password
2	Password Changing	1. Click on the Change Password Icon. 2. Give wrong Ids in New Password and Confirm New Password text boxes	System should ask for the Old Password, New Password and confirm New Password. After that System authentication will be done and the new password will be stored in the system. The system should throw an error saying that the passwords doesn't match and should prompt the user to re-enter the password
3	Download current share prices with internet connection available	1. Log in with valid user id and password 2. Click on download prices tab	The Current share prices should be downloaded from the prescribed site. The values have to be updated in the

			database.
	Download current share prices without internet connections	1. Log in with valid user id and password. 2. Click on download prices tab	The user should be taken to the Main Screen which has 2 panes and various tabs on the top of the page. The system should Prompt user for Internet Connections

2. GUI validation

1	GUI validation	1. Invoke the application 2. Observe the login window. 3. Observe spelling and the location of all the objects. 4. Enter the data into password field.	1. Login window displayed. 2. Login window should have Text box :User Name, Password. Buttons: Login, Cancel. 3. All the text & objects should be properly located & spelled. They should follow the logical order. 4. Password should be displayed in encrypted format like '*****'.
2	Valid Login	1. Enter valid user name & password. 2. Click on Login	User successfully logged in to the application. After login Investment screen should be displayed.
3	Invalid User Name	1. Enter Invalid User Name. 2. Enter valid password. 3. Click on Login.	Error message window displayed with proper error message. Message may be specific for 'Invalid user name' OR generalized one as ' Invalid user name OR password'.
4	Invalid Password	1. Enter valid User Name. 2. Enter invalid password. 3. Click on Login.	Error message window displayed with proper error message. Message may be specific for 'Invalid password' OR generalized one as ' Invalid user name OR password'.
5	Invalid User name & Password	1. Enter invalid User Name. 2. Enter invalid password. 3. Click on Login.	Error message window displayed with proper error message.
6	No. of unsuccessful login	Make the invalid login for 3 with different combinations times.	After 3rd unsuccessful login application should terminate.
7	Multiple Instances of the application	1. Re-invoke the application.	Re-invoke should be aborted OR working instance of the application should terminate and set to the login stage.

3. Creating user records

1	Portfolio		
1.1	Create Portfolio : Valid	Enter the valid portfolio name and click on Add.	Portfolio should get added and displayed in the tree structure at the left side of the screen at the proper position (sorted order).
1.2	Create Portfolio : Duplicate	Enter the duplicate portfolio name and click on Add.	Proper error message should be displayed. After clicking on "OK", cursor should set to the PF text box.
1.3	Cancel action	Enter the valid portfolio name and click on Cancel.	Portfolio should NOT get added and not been displayed in the tree structure at the left side of the screen.
2	Security		
2.1	Creating a Security	1. Select a Portfolio in which the security is to be created and Click on the "Create Security" icon in the Main Screen. 2. Enter the attributes and click on "Create Security"	System should ask the user to enter the attributes of the security An empty security of specified attributes should be created
2.2	Duplicate	1. Same as above 2. Enter the same Security name that exists already	System should throw an error message saying that the security creation failed.
3	Transactions		
3.1	Adding a Transaction	Select the portfolio and Security and click on "Add Transaction" icon	System should prompt the user for following details, a. Amount of money transacted b. Type of transaction: credit or debit. c. Date of transaction d. Any detail user might want to enter.
3.2		Enter the Details and click "Add Transaction" button	New transaction should get created

3.3		1. Same as above 2. Enter Invalid attribute values. For example field (i)(a) is not an integer or (i)(c) is not a float.	An Error message should be shown to the user and should prompt the user to enter the incorrect fields again.
4	Create security Duplicate		
4.1	Create the security with same name in different portfolios	1. Create portfolio PF1 2. Create portfolio PF2 3. Create security S1 in PF1. 4. Create security S1 in PF2.	Should be successful.
4.2	Create the security for same company in different portfolios	1. Create portfolio PF1 2. Create portfolio PF2 3. Create security S1 of type share for company ABC in PF1. 4. Create security S2 of type share for company ABC in PF2.	Should be successful since the transactions are defined under the securities.
4.3	Create the security for same bank in different portfolios	1. Create portfolio PF1 2. Create portfolio PF2 3. Create security S1 of type bank for company ABC in PF1. 4. Create security S2 of type bank for company ABC in PF2.	Should be successful since the transactions are defined under the securities.
5	Alerts		
5.1	Adding the alerts for the Past time	Add Alert with yesterdays date.	Application should NOT allow such activity OR proper error message should be shown.
5.2	Editing the alert which will set to Past time.	1. Add alert for tomorrow. 2. Edit alert and set the date for yesterday.	Application should NOT allow such activity OR proper error message should be shown.
5.3	Adding the more than alert for the same time.	1. Add alert1 with tomorrows date. 2. Add alert2 with tomorrows date. 3. Add alert3 with tomorrows date.	all the alerts should be shown in proper manner.
	Set the alert and change the system date and time	1. Set the alert for tomorrow. 2. Change the system date from the control panel to 2 days back.	Application should be in a stable state.

5.4	Set Alerts	1. Log in with Valid User id and password 2. Click on Set Alert tab on the top of the main screen. 3. Enter a valid date and all relevant values	The user should be taken to the Main Screen which has 2 panes and various tabs on the top of the page. The Set Alert screen should be displayed The alert should be set
5.5	Set Alerts with invalid values	1. Log in with Valid User id and password. 2. Click on Set Alert tab on the top of the main screen 3. Enter a Date that does not exist and enter all correct details	The user should be taken to the Main Screen which has 2 panes and various tabs on the top of the page The Set Alert screen should be displayed The alert should not be set and an appropriate error message should be displayed
5.6	To Display Pending Alerts	Log in with Valid User id and password.	The user should be taken to the Main Screen which has 2 panes and various tabs on the top of the page
5.7	Delete Alerts	1. Log in with Valid User id and password 2. Click on the Delete Alert Tab on the top of the main screen. 3. Click on Delete button without selecting an Alert 4. Select an Alert and then click on Delete button 5. confirm the deletion of Alert	The user should be taken to the Main Screen which has 2 panes and various tabs on the top of the page All the alerts that are set should be displayed The user should be prompted to select an alert The user should be asked for confirmation to delete the alert The Alert should be deleted

4. Editing the current data

1	Editing the Portfolio/ Security/ Others		
1.1	Rename Portfolio : Valid	1. Select the PF name to be renamed. 2. Enter the valid PF name in the new name field. 3. Click on "Update".	portfolio name should be updated and properly displayed in the tree structure.
1.2	Rename Portfolio : duplicate	1. Select the PF name to be renamed. 2. Enter the duplicate PF name in the new name field. 3. Click on "Update".	It should prompt the error message. (Except when old name & new name are same).
1.3	Renaming a Security	1. Click on the "Rename Security" icon on the Main Screen. 2. Enter a new name for the Security and click "Rename Security" button	System asks the name of the security to be renamed and the new name. Security name should be changed.
1.4		1. Same as above 2. Enter a Security name that does not exists	The system should throw an error message saying that the renaming fails
1.5		1. Same as above 2. Enter the same security name that is existing already	The system should throw an error message saying that the renaming fails as the entered Security name already exists
2	Transactions		
2.1	Editing of a transaction with invalid values	1-3 same as above 4. Enter invalid values in the field. i.e. Enter an integer value in the Name field and save the transaction	An appropriate error message should be displayed and the user should be prompted to change the invalid value
3	Shares		
3.1	Edit Current share Prices	1. Log in with Valid User id and password. 2. Click on Edit share prices tab. 3. Edit the share price of any share	The list of companies that has been downloaded previously should be displayed. The price should be edited and value should be saved
3.2	Edit Current share Prices with Invalid values	1. Log in with Valid User id and password 2. Click on Edit share prices tab 3. Edit the share price of any company with an invalid values	An appropriate error message should be displayed and the user should be prompted to enter a valid value
	Edit the shares prices when the new companies are get added to the	THIS IS BEING THE SPECIFIC SCENARIO. IT DEPENDS ON THE DOWNLOADED DATA. THE SITUATION HERE EXPECTED AS:	Those companies should get added to the list of companies present at user's PC.

	downloaded list.	1. Initially company list contain 100 names at the users PC. 2. When we download the share prices list, it will contain more than 100 company name b'coz of some companies r get added recently.	
4	Rename Portfolio		
	Rename the portfolio and check whether the associated securities are intact with it.	1. Create portfolio PF1 2. Create securities S1 under PF1. 3. Create securities S2 under PF1. 4. Rename PF1 to PF2. 5. Observe the securities under PF2	Securities under PF2 should be same as PF1 (old portfolio)
5	Rename Security		
	Rename the security when parent portfolio name changed.	1. Create portfolio PF1 2. Create securities S1 under PF1. 3. Create securities S2 under PF1. 4. Rename PF1 to PF2. 5. Rename security S1 to S3. 6. Observe the securities under PF2	PF2 should show the S1 & S3 as the securities.
6	Transaction dependencies		
6.1	Add transaction for the shares when the no of shares to sell r < available shares	1. Create portfolio PF1 2. Create security S1 of type shares under PF1. 3. Add trans1 as "Buy 100 shares @ price 500 each". 4. Add trans2 as "Sell 150 shares @ price 600 each".	should NOT be successful. Should give proper error message.
6.2	no of shares as –ve	1. Create portfolio PF1 2. Create security S1 of type shares under PF1. 3. Add trans1 as "Buy -100 shares @ price 500 each".	should NOT be successful. Should give proper error message.
6.3	shares prices are –ve	1. Create portfolio PF1 2. Create security S1 of type shares under PF1. 3. Add trans1 as "Buy 100 shares @ price -500 each".	should NOT be successful. Should give proper error message.
6.4	Repeat 4.1, 4.2 & 4.3 for Bank type security.	As mentioned in 4.1, 4.2 & 4.3.	should NOT be successful. Should give proper error message.

7	Edit Transaction		
7.1	Trans 1 : buy 100 shares@500 each Trans2 : sell 80 shares@600 each Edit trans1 to make the no of shares as 50.	1. Create portfolio PF1 2. Create security S1 of type shares under PF1. 3. Add trans1 as "Buy 100 shares @ price 500 each". 4. Add trans2 as "Sell 80 shares @ price 600 each". 5. Edit trans1 as "Buy 50 shares @ price 500 each".	should NOT be successful. Should give proper error message.
7.2	Editing of a transaction	Login with valid user Id and Password Select the Transaction Tab Select a transaction and click on the Edit Transaction Tab at the bottom of the screen Enter different values and save the transaction	The newly entered values should be accepted and the transaction should be saved with the new values

5. Deletions

1	Transaction		
	Trans 1 : buy 100 shares@500 each Trans2 : sell 80 shares@600 each delete trans1.	1. Create portfolio PF1 2. Create security S1 of type shares under PF1. 3. Add trans1 as "Buy 100 shares @ price 500 each". 4. Add trans2 as "Sell 80 shares @ price 600 each". 5. Delete trans1.	Should NOT be successful. Should give proper error message.
2	Portfolio		
2.1	Deleting the portfolio	Click on the "Delete Portfolio" icon on the main Screen Enter the name of the portfolio to be deleted and click "Delete portfolio. Choose the name which has no securities.	System should ask the name of the portfolio to be deleted The corresponding portfolio should get deleted
2.2	Delete the non- existent portfolio	Enter the portfolio name that does not exist and click "Delete Portfolio"	System should throw an error message saying that the entered portfolio does not exist.
2.3	Deleting a Security	1. Click on the "Delete Security" icon on the main Screen 2. Enter the name of the portfolio to be deleted and click "Delete Security"	System should ask the name of the Security to be deleted. The corresponding Security should get deleted

		1. Same as above 2. Enter the security name that does not exist and click "Delete Security"	System should throw an error message saying that the entered Security name does not exist.
3	Transaction		
3.1	Deleting of a transaction	1. Log in with Valid User id and password. 2. Select the Transaction Tab 3. Click on Delete Transaction button without selecting any transaction. 4. Select any Transaction and click the Delete Transaction Tab 5. Confirm to Delete the selected Transaction	The selected Transaction should be deleted

6. Display

1	Display the Investment Details	1. Log in with Valid User id and password 2. Click on the Investment tab in the left pan of the main screen. 3. Compare the Worth of Portfolio displayed in the main screen with the one calculated manually using the formula given	The various available Portfolios should be displayed along with the worth and the summation displayed as Net Worth, also the Add Portfolio, Delete Portfolio and Edit Portfolio buttons should be displayed. The values should be equal.
2	Display the Portfolio Details	1. Log in with Valid User id and password. 2. Select the Portfolio tab in the left pan of the main screen. 3. Compare the Worth of Security and ROI displayed in the main screen with the one calculated manually by the formula given.	The various available securities should be displayed along with the Net worth and ROI calculated. Also the Net Worth of the securities which is the summation of all Net Worth of Each securities should also be displayed in the bottom of the screen along with the Add Security, Delete Security and Edit Security screen. The values should be equal
3	Display the Securities Details	1. Log in with Valid User id and password. 2. Select any particular security under a portfolio from the left pan of the main screen	The user should be taken to the Main Screen which has 2 panes and various tabs on the top of the page. All the transactions corresponding to that screen should be displayed along with the following details 1. Notes 2. Date 3. Amount Transacted 4. Transaction Type also the Add Transaction, Delete Transaction and Edit Transaction buttons at the bottom of the screen

7. Computations

1. ROI computations	ROI computations for bank.		
1.1	with compound interest methods	1. Create portfolio PF1 2. Create security S1 of type bank under PF1. 3. Add trans1 as "Invest Rs. 50,000 @ 8% compound interest for 5 years." 4. Use formula, $P = N(1 + R/100)^n$ $= \text{Rs. } 73,466.5$	Net-worth for the security after 5 years should be displayed as Rs. 73,466.5
1.2	Discarding some amount from the specific saving and analyzing the change in ROI	1. Create portfolio PF1 2. Create security S1 of type bank under PF1. 3. Add trans1 as "Invest Rs. 50,000 @ 8% compound interest." 4. Add trans2 as "Take out 20,000 after 1 year." 5. Check the Net worth computation at the end of 3 years.	ROI of security should be match with the computed ROI.
1.3	Set of transactions	1. Create a portfolio BT1 (given below). 2. Create a security of type bank under BT1. 3. Add the given transactions. 4. Final amount withdrawn from the bank will leave Rs. 0.4 balance	The computed Net Worth should be displayed as Rs. 0.4
2	ROI computations for shares.		
2.1	ROI computations for portfolio	1. Create portfolio BT1 2. Create security S1,S2, S3 of type bank under PF1. 3. Add the transactions to S1,S2 ,S3 4. Check the ROI computation at security level. 5. Check the ROI computation for portfolio	ROI should be same as expected values.
2.2	all securities are only of type shares	1. Create portfolio ST3 2. Create security S1,S2,S3 (Asian coffee, L&T etc) of type share under ST3. 3. Add the transactions to S1, S2,S3 4. Check the ROI computation at security level. 5. Check the ROI computation for portfolio	ROI should be same as expected values. Cumulative ROI is average of all.
2.3	mix-up securities.	1. Create portfolio ST4 2. Create security S1 of type share (as in ST1) and S3 (as in BT1) of type bank. 3. Add the transactions to S1,S2. 4. Check the ROI computation at security level. 5. Check the ROI computation for	ROI should be average of all.

		portfolio	
3	Computing overall ROI.		
3.1	Computing the ROI for the whole investment.	1. Create ST6 as described below. 2. Check the ROI computation for portfolio 3. Check the ROI computation for whole investment	ROI should be average of all portfolios ROI
4	Net-Worth Computation		
4.1	Computing the Net-Worth for the bank type security.	1. Create portfolio BT1 2. Create security S1 of type bank under PF1. 3. Add the given set of transactions. 4. The overall network should be Rs. 0.4	Net worth should include interest gain till date and should be same as expected value.
4.2	Computing the Net-Worth for the shares type security.	1. Create portfolio ST3 2. Create security S1,S2,S3 (Asian coffee, L&T etc) of type share under ST3. 3. Add the transactions to S1, S2,S3... 4. Check the Networth computation at security level. 5. Check the Networth computation for portfolio	Net worth should show the current value of the number of shares available and after final transaction it should be zero.
Net-Worth Computation for portfolio	Computing the Net-Worth for the portfolio	1. Create portfolio ST4 2. Create security S1 of type share (as in ST1) and S3 (as in BT1) of type bank. 3. Add the transactions to S1,S2. 4. Check the network computation at security level. 5. Check the NetWorth computation for portfolio	Net worth should show the sum of Net-worth of all the securities under portfolio.
Net-Worth Computation for whole Investment	Computing the Net-Worth for the whole Investment.	1. Create ST6 2. Check the Net-worth computation for portfolio 3. Check the Net Worth computation for whole investment	Net worth should show the sum of Net-worth of all the portfolios.
5	Loss in shares		
5.1	Verifying the losses in the shares transaction.	1. Create portfolio (as in s3 of ST3). 2. Create security of type shares under ST3. 3. Add trans1 as "Buy 10 shares @ price 100 each". 4. Add trans2 as "Sell 10 shares @ price 70 each". 5. Check the ROI for the security.	ROI should be -ve in this cases.

Test Data

Bank Test 1 (BT1):

INPUT

At Rate 1%

Debit/Credit	Value	Date
Credit	1000	1/83
Debit	400	1/84
Debit	1200	1/91
Credit	500	1/94
Debit	300	1/96
Debit	1000	1/00
Debit	1000	1/02
Debit	358.4	1/05

Expected Net Worth as on 4/05 is 0.40

Share Transactions:

Share Test1 (ST1):

INPUT

Buy/Sell	Value	#shares	Share value	Transaction date
Buy	26000	260	100	4/90
Sell	3900	39	100	7/91
Sell	5000	50	100	7/92
Buy	7800	78	100	8/92
Sell	6500	65	100	7/93
Buy	20000	200	100	8/93
Sell	1450	29	50	9/93

EXPECTED RESULTS

Expected Monthly ROI = 0.37% or RoI per year = 4.53%

Expected NetWorth = 69700

Share Test2 (ST2):

INPUT

Buy/Sell	Value	#shares	Share value	Transaction date
Buy	1000	50	20	1/81
Sell	700	7	100	1/83
Sell	700	1	700	1/85
Sell	700	1	700	1/87

Sell	700	1	700	1/89
Sell	1200	1	1200	1/91
Sell	1200	2	600	1/93
Sell	1200	2	600	1/95
Sell	1700	2	850	1/97
Sell	1700	2	850	1/97
Sell	1700	2	850	1/99
Sell	1700	2	850	1/2001
Sell	1700	2	850	1/2003

EXPECTED RESULTS

Current Share Price: 1200

NetWorth as on 4/05 = 30000

Monthly ROI = 2.45%

(or) RoI per year = 33.7%

Share Test 3 (ST3):

INPUT

<i>Company Name</i>	<i>Buy/Sell</i>	<i>Value</i>	<i>#shares</i>	<i>Share value</i>	<i>Transaction date</i>	<i>Expected Monthly ROI</i>
<i>Asian Coffee</i> S1	Buy	1000	10	100	8/89	RoI=4.81% (76%)
	Buy	1600	16	100	7/91	
	Sell	19500	26	750	2/94	
<i>L and T</i> S2	Buy	12000	120	100	3/92	RoI=7.24% (131%)
	Sell	60000	120	500	2/94	
<i>Mohendra Cement</i> S3	Buy	1000	10	100	1/93	RoI= -1.47% (-17%)
	Sell	700	10	70	2/94	
<i>RIL</i> S4	Buy	13200	132	100	1/92	RoI=5.75% (95.5%)
	Sell	53460	132	405	2/94	
<i>Silverline</i> S5	Buy	1000	10	100	11/92	RoI=10.03% (214%)
	Sell	4200	10	420	2/94	
<i>TISCO</i> S6	Buy	3000	30	100	2/92	RoI=6.68% (117%)
	Buy	1680	10	168	4/93	
	Sell	17400	20	435	2/94	
<i>Videocon Appl</i> S7	Buy	5000	50	100	7/92	RoI=5.95% (100%)
	Sell	15000	50	300	2/94	

Expected NetWorth (without final transactions in each security) = 170260

Test case 5 (ST4):

Input :

Two portfolios - BT1, ST1

Expected Result:

Total NetWorth of investment = 69700.4

Same individual ROI as in BT1 and ST1

Test case 6 (ST5):

Input :

Two portfolios - ST1, ST2

Expected Result:

Total NetWorth of investment = 99700

Same individual ROI as in ST1 and ST2

Test case 5 (ST6):

Input :

Three portfolios - ST1, ST2, ST3

Expected Result:

Total NetWorth of investment = 269960

Same individual ROI as in ST1, ST2 and ST3

PIMS : Testing report

PIMS details:

No. of classes:	40
No. of methods:	242
No. of branches:	1340
No. of exceptions:	51
No. of simple predicates:	333

Testing details:

No. of test cases failed:	8
Coverage after testing:	80%(Branch)

Failed test cases:

Test case	Test case details	Remarks
5.5 (3. Creating user records)	Set alert with invalid date. Added an alert on Feb 31, 2006	*Failed* Feb 31 does not exist.
5.6 (3. Creating user records)	Display pending alerts	*Failed* Order was not correct
5.7 (3. Creating user records)	Delete alerts	*Failed* Delete was successful but not asked for confirmation
6.2 (4. Editing the current data)	Transaction with number of shares as negative Buy -100@500	*Failed* Transaction added
6.3 (4. Editing the current data)	Share price as -ve Buy 100@-500	*Failed* transaction added
6.4 (4. Editing the current data)	Bank transaction with -ve money	*Failed* Transaction added
3.1, 3.2 (4. Editing the current data)	Edit share with -ve value	*Failed* Transaction edit was successful
2.1 (4. Editing the current data)	Edit bank transaction with -ve value	*Failed* Transaction edit was successful