PROJECT ON GROCERY SHOP MANAGEMENT SYSTEM

INTRODUCTION

This software is used to maintain the shop customer detail, product

details,workerdetail maintain the shop in updated and maintain records of in and out

data of shop

OBJECTIVES OF THE PROJECT

The objective of this project is to let the students apply the programming

knowledge into a real- world situation/problem and exposed the students how

programming skills helps in developing a good software.

1. Write programs utilizing modern software tools.

2. Apply object oriented programming principles effectively when developing
   small to medium sized projects.

3. Write effective procedural code to solve small to medium sized problems.

4. Students will demonstrate a breadth of knowledge in computer science, as
   exemplified in the areas of systems, theory and software development.

5. Students will demonstrate ability to conduct a research or applied Computer
   Science project, requiring writing and presentation skills which exemplify
   scholarly style in computer science.

PROPOSED SYSTEM

Today one cannot afford to rely on the fallible human beings of be really wants to stand against today's merciless competition where not to wise saying **"to err is human"** no longer valid, it's outdated to rationalize your mistake. So, to keep pace with time, to bring about the best result without malfunctioning and greater efficiency so to replace the unending heaps of flies with a muchsophisticated hard disk of the computer.

One has to use the data management software. Software has been an ascent in atomizationvarious organisations. Many software products working are now in markets, which have helped in making the organizations work easier and efficiently. Data management initially hadto maintain a lot of ledgers and a lot of paperwork has to be done but now software producton this organization has made their work fasterand easier. Now only this software has to beloaded on the computer and work can be done.

This prevents a lot of time and money. Thework becomes fully automated and any information regarding the organization can beobtained by clicking the button. Moreover, nowit's an age of computers of and automatingsuch an organization gives the better look.

SYSTEM DEVELOPMENT LIFE CYCLE (SDLC)
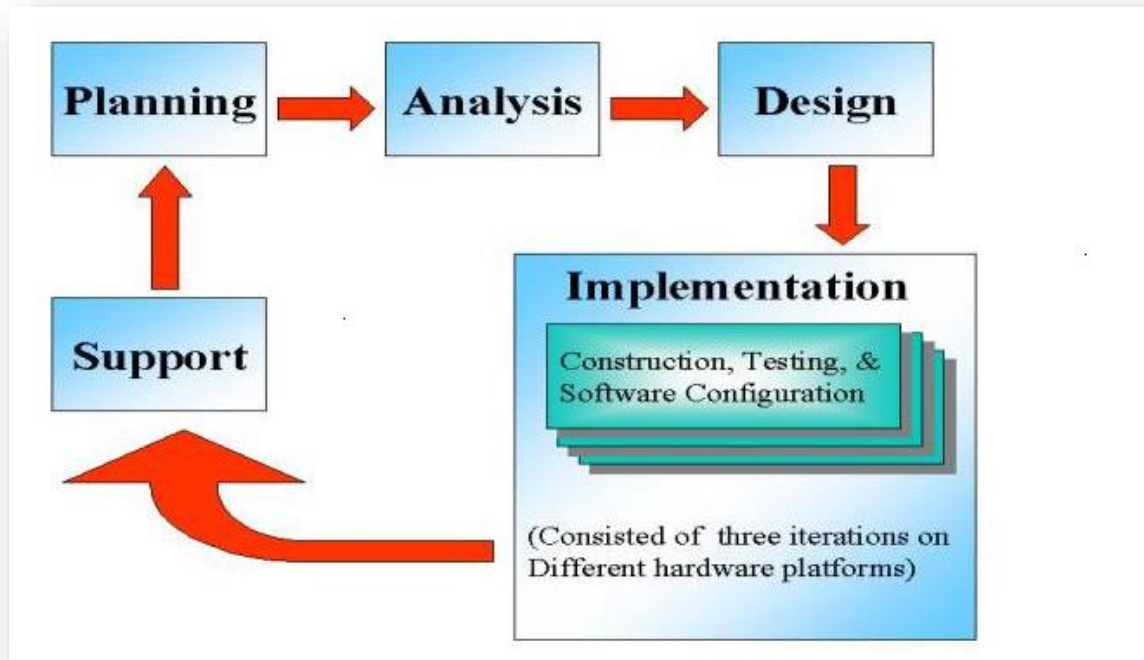
The systems development life cycle is a projectmanagement technique that divides complexprojects into smaller, more easily managedsegments or phases. Segmenting projectsallows managers to verify the successfulcompletion of project phases before allocatingresources to subsequent phases.

Software developmentprojects typically include initiation, planning,design, development, testing, implementation,and maintenance phases. However, the phasesmay be divided differently depending on theorganization involved.

For example, initialproject activities might be designated asrequest, requirements-definition, and planningphases, or initiation, concept-development,and planning phases. End users of the systemunder development should be involved inreviewing the output of each phase to ensurethe system is being built to deliver the neededfunctionality.

PHASES OF SYSTEM DEVELOPMENT LIFE CYCLE

INITIATION PHASE

The Initiation Phase begins when a business sponsor identifies a need or an opportunity.

The purpose of the Initiation Phase is to:

- Identify and validate an opportunity to improve business accomplishments of the organization or a deficiency related to a business need.
- Identify significant assumptions and constraints on solutions to that need.
- Recommend the exploration of alternative concepts and methods to satisfy the need including questioning the need for technology, i.e., will a change in the business process offer a solution?
- Assure executive business and executive technical sponsorship. The Sponsor designates a Project Manager and the business need is documented in a Concept Proposal. The Concept Proposal includes information about the business process andthe relationship to the Agency/Organization.
- Infrastructure and the Strategic Plan. A successful Concept Proposal results in a Project Management Charter which outlines the authority of the project manager to begin the project.

Careful oversight is required to ensure projects support strategic business objectives and resources are effectively implemented into an organization's enterprise architecture. The initiation phase begins when an opportunity to add, improve, or correct a system is identified and formally requested through the presentation of a business case. The business case should, at a minimum, describe a proposal's purpose, identify expected benefits, and explain how the proposed system supports one of the organization's business strategies. The business case should also identify alternative solutions and detail as many informational, functional, and network requirements as possible.

SYSTEM CONCEPT DEVELOPMENT PHASE

The System Concept Development Phase begins after a business need or opportunity is validated by the Agency/Organization Program Leadership and the Agency/Organization CIO.

The purpose of the System Concept Development Phase is to:

- Determine the feasibility and appropriateness of the alternatives.
- Identify system interfaces.
- Identify basic functional and data requirements to satisfy the business need.
- Establish system boundaries; identify goals, objectives, critical success factors, and performance measures.
- Evaluate costs and benefits of alternative approaches to satisfy the basic functional requirements
- Assess project risks
- Identify and initiate risk mitigation actions, andDevelop high-level technical architecture, process models, data models, and a concept of operations. This phase explores potential technical solutions within the context of the business need.
- It may include several trade-off decisions such as the decision to use COTS software products as opposed to developing custom software or reusing software components, or the decision to use an incremental delivery versus a complete, onetime deployment.
- Construction of executable prototypes is encouraged to evaluate technology to support the business process. The System Boundary Document serves as an important reference document to support the Information Technology Project Request (ITPR) process.
- The ITPR must be approved by the State CIO before the project can move forward.

PICTORIAL REPRESENTATION OF SDLC:
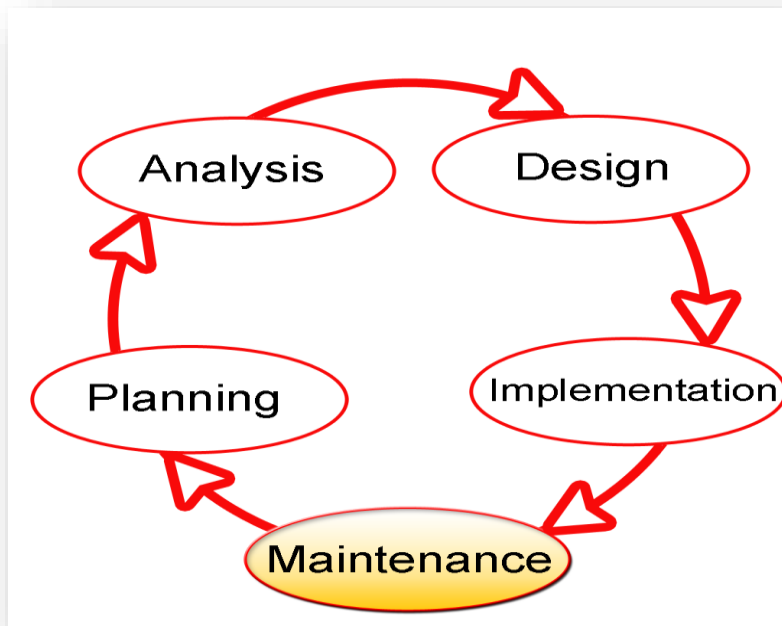
PLANNING PHASE

The planning phase is the most critical step in completing development, acquisition, and maintenance projects. Careful planning, particularly in the early stages of a project, isnecessary to coordinate activities and manage project risks effectively. The depth and formality of project plans should be commensurate with the characteristics and risks of a given project. Project plans refine the information gathered during the initiation phase by further identifying the specificactivities and resources required to complete a project.

A critical part of a project manager'sjob is to coordinate discussions between user, audit, security, design, development, and network personnel to identify and

document as many functional, security, and networkrequirements as possible. During this phase, a plan is developed that documents the approach to be used and includes a discussion of methods, tools, tasks, resources, project schedules, and user input. Personnel assignments, costs, project schedule, and target dates are established.

A Project Management Plan is created with components related to acquisition planning, configuration management planning, quality assurance planning, concept of operations, system security, verification and validation, and systems engineering management planning.

<h2 style="text-align:center"><u>REQUIREMENTS ANALYSIS PHASE</u></h2>

This phase formally defines the detailed functional user requirements using high-level requirements identified in the Initiation, System Concept, and Planning phases. It also delineates the requirements in terms of data, system performance, security, and maintainability requirements for the system. The requirements are defined in this phase to alevel of detail sufficient for systems design to proceed. They need to be measurable, testable, and relate to the business need or opportunity identified in the Initiation Phase. The requirements that will be used to determine acceptance of the system are captured in the Test and Evaluation MasterPlan.

The purposes of this phase are to:

- Further define and refine the functional and data requirements and document them in the Requirements Document,
- Complete business process reengineering of the functions to be supported (i.e., verify what information drives the business process, what information is generated, who generates it, where does the information go, and who processes it),
- Develop detailed data and process models (system inputs, outputs, and the process.
- Develop the test and evaluation requirements that will be used to determine acceptable system performance**.**

DESIGN PHASE

The design phase involves converting the informational, functional, and network requirements identified during the initiation and planning phases into unified design specifications that developers use to scriptprograms during the development phase. Program designs are c onstructed in various ways. Using a top-down approach, designers first identify and link majorprogram components and interfaces, then expand design layouts as they identify and link smaller subsystems and connections. Using a bottom-up approach, designers first identify and link minor program components and interfaces, then expand design layouts as they identify and link larger systems and connections. Contemporary design techniques often use prototyping tools that build mock-up designs of items such as application screens, database layouts, and system architectures. End users, designers, developers, database managers, and network administrators should review and refine the prototyped designs in an iterative process until they agree on an acceptable design. Audit, security, and quality assurance personnel should be involved in the review and approval process. During this phase, the system is designed to satisfy the functional requirements identified in the previous phase. Since problems in the design phase could be very expensive to solve in the later stage of the software development, a variety of elements are considered in the design to mitigate risk. These include:

- Identifying potential risks and defining mitigating design features.
- Performing a security risk assessment.
- Developing a conversion plan to migrate current data to the new system.
- Determining the operating environment.
- Defining major subsystems and their inputs and outputs.
- Allocating processes to resources.
- Preparing detailed logic specifications for each software module. The result is a draft System Design Document which captures the preliminary design for the system.
- Everything requiring user input or approval is documented and reviewed by the user. Once these documents have been approved by the Agency CIO and

Business Sponsor, the final System Design Document is created to serve as the Critical/Detailed Design for the system.

+ This document receives a rigorous review byAgency technical and functional representatives to ensure that it satisfies the business requirements. Concurrent with the development of the system design, the Agency Project Manager begins development of the Implementation Plan, Operations and Maintenance Manual, and the Training Plan.

DEVELOPMENT PHASE

The development phase involves converting design specifications into executable programs. Effective development standards include requirements that programmers and other project participants discuss design specifications before programming begins. The procedures help ensure programmers clearly understand program designs and functional requirements. Programmers use various techniques to develop computer programs. The large transaction oriented programs associated with financial institutions have traditionally been developed using procedural programming techniques. Procedural programming involves the line-by-line scripting of logical instructions that are combined to form a program.Effective completion of the previous stages is a key factor in the success of the Development phase. The Development phase consists of:

+ Translating the detailed requirements and design into system components.
+ Testing individual elements (units) for usability.
+ Preparing for integration and testing of the IT system.

INTEGRATION AND TEST PHASE

+ Subsystem integration, system, security, and user acceptance testing is conducted during the integration and test phase. The user, with those responsible for quality assurance, validates that the functional requirements, as defined in the functional requirements document, are satisfied by the developed or modified system. OIT Security staff assess the system security

and issue a security certification and accreditation prior to installation/implementation.

Multiple levels of testing are performed, including:

- ✦ Testing at the development facility by the contractor and possibly supported by end users

- ✦ Testing as a deployed system with end users working together with contract personnel

- ✦ Operational testing by the end user alone performing all functions. Requirements are traced throughout testing,a final Independent Verification & Validation evaluation is performed and all documentation is reviewedand accepted prior to acceptance of the system.

IMPLEMENTATION PHASE

This phase is initiated after the system has been tested and accepted by the user. In this phase, the system is installed to support the intended business functions. System performance is compared to performance objectives established during the planning phase. Implementation includes user notification, user training, installation of hardware, installation of software onto production computers, and integration of the system into daily work processes. This phase continues until the system is operating in production in accordance with the defined userrequirements.

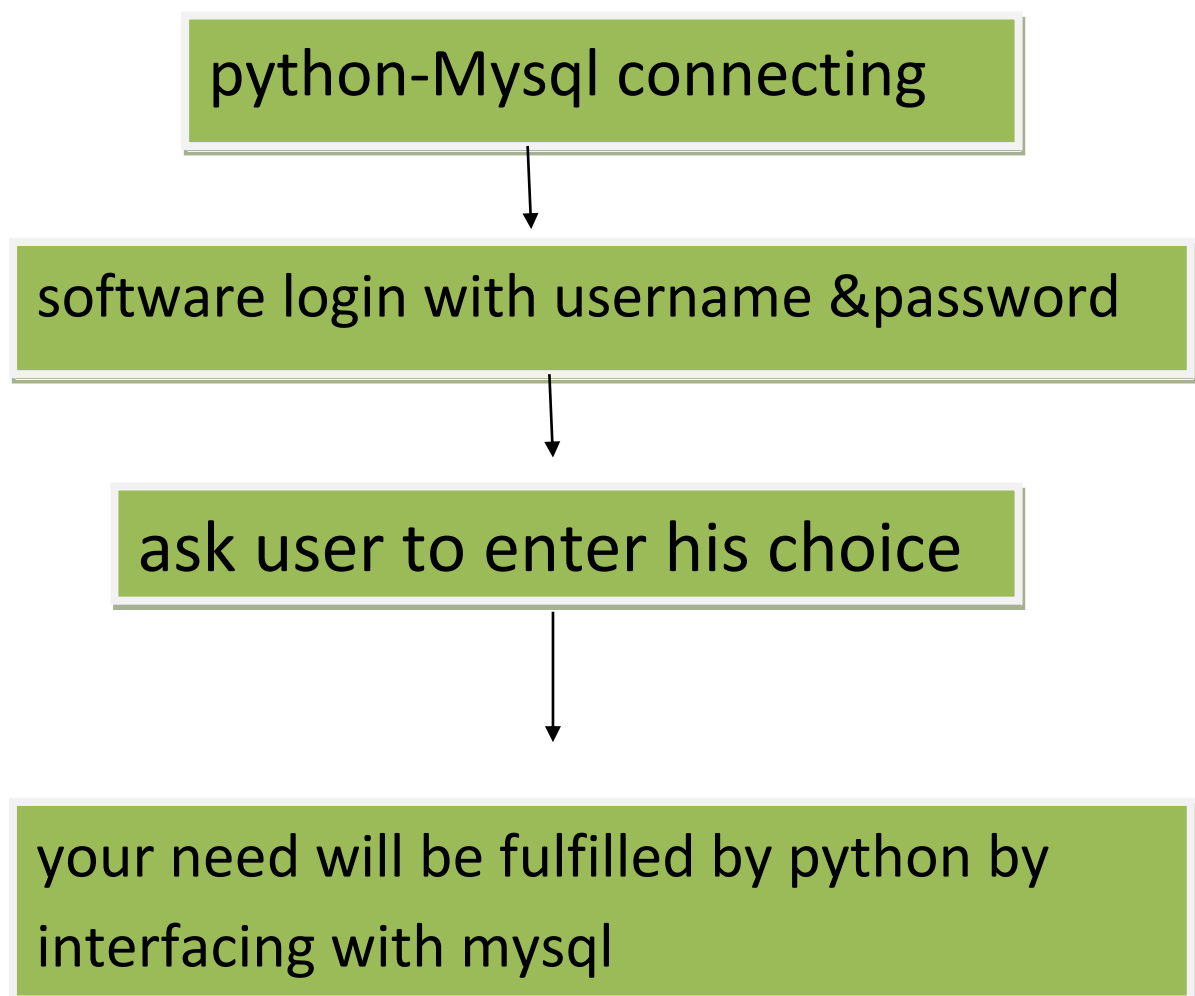## OPERATIONS AND MAINTENANCE PHASE

The system operation is ongoing. The system is monitored for continued performance in accordance with user requirements and needed system modifications are incorporated. Operations continue as long as the system can be effectively adapted to respond to the organization's needs. When modifications or changes are identified, the system may reenter the planning phase.

The purpose of this phase is to:

- Operate, maintain, and enhance the system.
- Certify that the system can process sensitive information.
- Conduct periodic assessments of the system to ensure the functional requirements continue to be satisfied.
- Determine when the system needs to be modernized, replaced, or retired.

FLOW CHART

python-Mysql connecting

software login with username &password

ask user to enter his choice

your need will be fulfilled by python by interfacing with mysql

SOURCE CODE

```python
import mysql.connector as sql
conn=sql.connect(host='localhost',user='root',passwd='manager'
,database='grocery_shop')
if conn.is_connected():
    print('successfully connected')
c=conn.cursor()


print('grocery shop management system')
print('1.login')
print('2.exit')
choice=int(input('enter your choice:'))
if choice==1:
    user_name=input('enter your user name=')
    password=input('enter your password=')
    while user_name=='nitin' and password=='nitin123':
        print('connected successfully')



        print('grocery shop')
        print('1.customer details')
        print('2.product details')
        print('3.worker details')
        print('4.see all customer details')
        print('5.see all product details')
        print('6.see all worker details')
        print('7.see one customer details')
        print('8.see one product details')
```

```python
        print('9.see one worker details')
        print('10.stocks')
        print('11.pie chart for avalibility of stock')
        choice=int(input('enter the choice'))
        if choice==1:
            cust_name=input('enter your name=')
            phone_no=int(input('enter your  phone number='))
            cost=float(input('enter your cost='))
            sql_insert="insert into customer_details
values("+str(phone_no)+",'"+(cust_name)+"',"+str(cost)+")"
            c.execute(sql_insert)
            conn.commit()
            print('data is updated')


        elif choice==2:
            product_name=input('enter  product name=')
            product_cost=float(input('enter the cost='))
            sql_insert="insert into product_details
values(""'"+(product_name)+"',"+str(product_cost)+")"
            c.execute(sql_insert)
            conn.commit()
            print('data is updated')


        elif choice==3:
            worker_name=input('enter your name=')
            worker_work=input('enter your work=')
            worker_age=int(input('enter your  age='))
            worker_salary=float(input('enter your salary='))
            phone_no =int(input('enter your  phone number='))
            sql_insert="insert into worker_details values("
"'"+(worker_name)+"',"
"'"+(worker_work)+"',"+str(worker_age)+","+str(worker_salary)+
","+str(phone_no)+ ")"
```

```python
            c.execute(sql_insert)
            conn.commit()
            print('data is updated')


        elif choice==4:
            t=conn.cursor()
            t.execute('select*from customer_details')
            record=t.fetchall()
            for i in record:
                print(i)


        elif choice==5:
            t=conn.cursor()
            t.execute('select*from product_details')
            record=t.fetchall()
            for i in record:
                print(i)


        elif choice==6:
            t=conn.cursor()
            t.execute('select*from worker_details')
            record=t.fetchall()
            for i in record:
                print(i)


        elif choice==7:
            a=input('enter your name')
            t='select*from customer_details where
cust_name=("{}")'.format(a)
            c.execute(t)
            v=c.fetchall()
            for i in v:
                print(v)
```

```python
        elif choice==8:
            a=input('enter your product_name')
            t='select*from product_details where
product_name=("{}")'.format(a)
            c.execute(t)
            v=c.fetchall()
            for i in v:
                print(v)


        elif choice==9:
            a=input('enter your name')
            t='select*from worker_details where
worker_name=("{}")'.format(a)
            c.execute(t)
            v=c.fetchall()
            for i in v:
                print(v)



        elif choice==10:

print('*****************************************')
            f=open('test.txt','r')
            data=f.read()
            print(data)
            f.close()


print('*****************************************')

        elif choice==11:
            import matplotlib.pyplot as plt
            items=('shoes','stationary','watch','house
use','food items')
```

```
                avalibility=[156,200,103,206,196]

colors=['red','yellowgreen','blue','gold','lightcoral']
                plt.pie(avalibility,labels=items,colors=colors)
                plt.title('avalibility of items in shop')
                plt.show()




        else:
                print('wrong password, try again ')



if choice==2:
        exit()
```

OUTPUT

```
grocery shop
1.customer details
2.product details
3.worker details
4.see all customer details
5.see all product details
6.see all worker details
7.see one customer details
8.see one product details
9.see one worker details
10.stocks
11.exit
enter the choice1
enter your name=vijay
enter your  phone number=885445555
enter your cost=4755.31
data is updated
```

```
grocery shop
1.customer details
2.product details
3.worker details
4.see all customer details
5.see all product details
6.see all worker details
7.see one customer details
8.see one product details
9.see one worker details
10.stocks
11.exit
enter the choice2
enter  product name=python book
enter the cost=575
data is updated
```

```
grocery shop
1.customer details
2.product details
3.worker details
4.see all customer details
5.see all product details
6.see all worker details
7.see one customer details
8.see one product details
9.see one worker details
10.stocks
11.exit
enter the choice3
enter your name=ganesh
enter your work=helper
enter your  age=19
enter your salary=5000
enter your  phone number=84884156
data is updated
```

```
grocery shop
1.customer details
2.product details
3.worker details
4.see all customer details
5.see all product details
6.see all worker details
7.see one customer details
8.see one product details
9.see one worker details
10.stocks
11.exit
enter the choice4
(984688556, 'nitin', 10000.0)
(945886234, 'kalanithi', 10.63)
(894555612, 'vasu don', 7356.0)
(447748454, 'vishal', 1254.0)
(895585656, 'marri', 5648.0)
(854541523, 'ankit', 1545.0)
(845786552, 'ankit', 1254.0)
(845565655, 'ganaesh', 125.0)
(848256596, 'binu', 12496.0)
(84899845, 'vibor', 50.0)
(885445555, 'vijay', 4755.31)
```

```
grocery shop
1.customer details
2.product details
3.worker details
4.see all customer details
5.see all product details
6.see all worker details
7.see one customer details
8.see one product details
9.see one worker details
10.stocks
11.pie chart for avalibility of stock
enter the choice5
('tomato', 50.0)
('watch', 1559.59)
('pen', 5.0)
('water bottel', 14.65)
('sonata', 1564.0)
('python book', 575.0)
```

```
grocery shop
1.customer details
2.product details
3.worker details
4.see all customer details
5.see all product details
6.see all worker details
7.see one customer details
8.see one product details
9.see one worker details
10.stocks
11.pie chart for avalibility of stock
enter the choice6
('nitin', 'manager', 16, 10000.0, 861024564)
('kishor', 'helper', 24, 5000.0, 875851563)
('ankit', 'maintainer', 27, 10000.0, 854851555)
('sharan', 'distibutor', 31, 10067.0, 845564155)
('marri muthu', 'owner', 32, 100000.0, 84554555)
('ganesh', 'helper', 19, 5000.0, 84884156)
```

```
grocery shop
1.customer details
2.product details
3.worker details
4.see all customer details
5.see all product details
6.see all worker details
7.see one customer details
8.see one product details
9.see one worker details
10.stocks
11.pie chart for avalibility of stock
enter the choice11
```

avalibility of items in shop
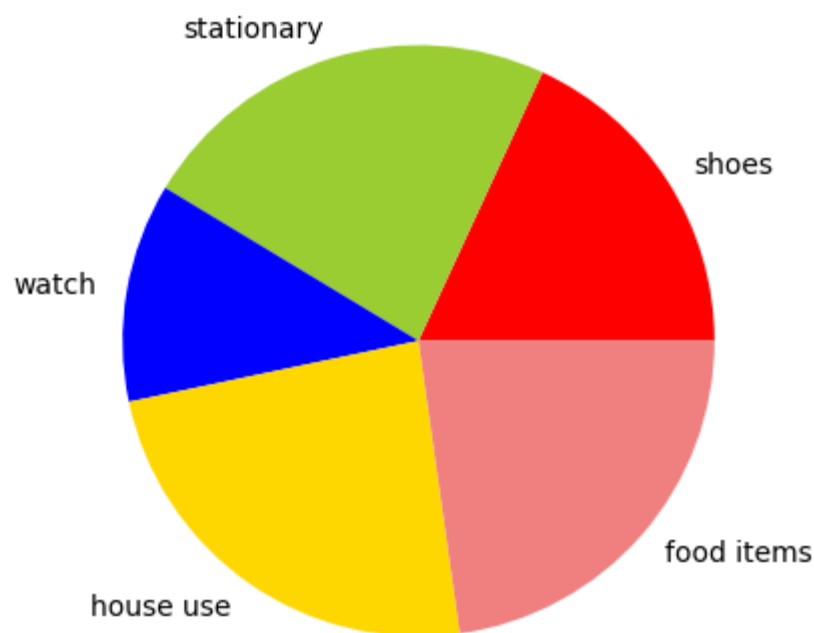
Testing

Software Testing is an empirical investigation conducted to provide stakeholders with information about the quality of the product or service under test[1] , with respect to the context in which it is intended to operate. Software Testing also provides an objective, independent view of the software to allow the business to appreciate and understand the risks at implementation of the software. Test techniques include, but are not limited to, the process of executing a program or application with the intent of finding software bugs.

It can also be stated as the process of validating and verifying that a software program/application/product meets the business and technical requirements that guided its design and development, so that it works as expected and can be implemented with the same characteristics. Software Testing, depending on the testing method employed, can be implemented at any time in the development process, however the most test effort is employed after the requirements have been defined and coding process has been completed.

TESTING METHODS

Software testing methods are traditionally divided into black box testing and white box testing. These two approaches are used to describe the point of view that a test engineer takes when designing test cases.

BLACK BOX TESTING

Black box testing treats the software as a "black box," without any knowledge of internal implementation. Black box testing methods include: equivalence partitioning, boundary value analysis, all-pairs testing, fuzz testing, model-based testing, traceability matrix, exploratory testing and specification-based testing.

SPECIFICATION-BASED TESTING

Specification-based testing aims to test the functionality of software according to the applicable requirements.[16] Thus, the tester inputs data into, and only sees the output from, the test object. This level of testing usually requires thorough test cases to be provided to the tester, who then can simply verify that for a given input, the output value (or behaviour), either "is" or "is not" the same as the expected value specified in the test case. Specification-based testing is necessary, but it is insufficient to guard against certain risks

ADVANTAGES AND DISADVANTAGES

The black box tester has no "bonds" with the code, and a tester's perception is very simple: a code must have bugs. Using the principle, "Ask and you shall receive," black box testers find bugs where programmers don't. But, on the other

hand, black box testing has been said to be "like a walk in a dark labyrinth without a flashlight," because the tester doesn't know how the software being tested was actually constructed.

That's why there are situations when (1) a black box tester writes many test cases to check something that can be tested by only one test case, and/or (2) some parts of the back end are not tested at all. Therefore, black box testing has the advantage of "an unaffiliated opinion," on the one hand, and the disadvantage of "blind exploring," on the other.

WHITE BOX TESTING

White box testing, by contrast to black box testing, is when the tester has access to the internal data structures and algorithms (and the code that implement these)

Types of white box testing:-

The following types of white box testing exist:
- api testing - Testing of the application using Public and Private APIs.
- Code coverage - creating tests to satisfy some criteria of code coverage.

For example, the test designer can create tests to cause all statements in the program to be executed at least once.
- fault injection methods.
- mutation testing methods.
- static testing - White box testing includes all static testing.

CODE COMPLETENESS EVALUATION

White box testing methods can also be used to evaluate the completeness of a test suite that was created with black box testing methods. This allows the software team to examine parts of a system that are rarely tested and ensures that the most important function points have been tested.

Two common forms of code coverage are:

- FunctionCoverage: Which reports on functions executed and
- StatementCoverage:Which reports on the number of lines executed to complete the test.

They both return coverage metric, measured as a percentage

HARDWARE AND SOFTWARE REQUIREMENTS

I.OPERATING SYSTEM   :   WINDOWS 10 AND ABOVE

II. PROCESSOR   :   PENTIUM(ANY) OR AMD

ATHALON(3800+- 4200+ DUALCORE)

III. MOTHERBOARD   :   1.845 OR 915,995 FOR PENTIUM 0R MSI

K9MM-V VIAK8M800+8237R PLUS

CHIPSET FOR AMD ATHALON

IV. RAM   :   512MB+

V. Hard disk   :   SATA 40 GB OR ABOVE

VI. CD/DVD r/w multi drive combo: (If back up required)

VII. FLOPPY DRIVE 1.44 MB   :   (If Backup required)

VIII. MONITOR 14.1 or 15 -17 inch

IX. Key board and mouse

X. Printer   :   (if print is required – [Hard copy])

SOFTWARE REQUIREMENTS:

I.   Windows OS
II.   Python
III.   mysql

BIBLIOGRAPHY

1. *Computer science With Python - Class XII   By : Sumita Arora*
2. *Website:* **https://www.w3resource.com**

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