ENM448-PROJECT PLANNING AND MANAGEMENT

TERM PROJECT

2019-2020 FALL TERM

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What Is Project?

"A project is a temporary endeavor undertaken to create a unique product, service, or result."

Project Management Instutie

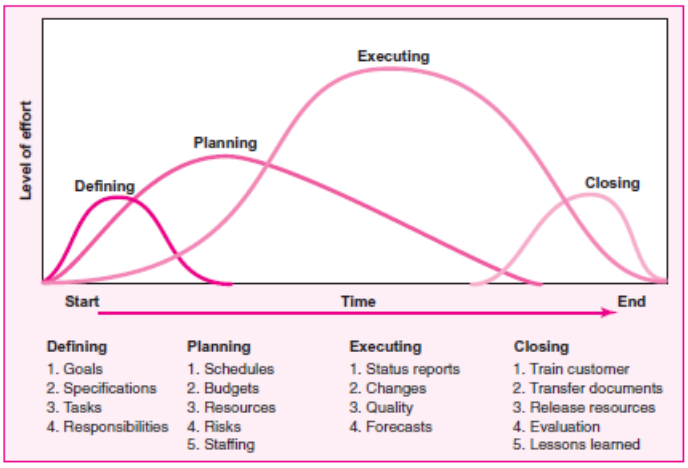
Like most organizational effort, the major goal of a project is to satisfy a customer's need. Beyond this fundamental similarity, the characteristics of a project help differentiate it from other endeavors of the organization.

The major characteristics of a project are as follows:

1. An established objective.
2. A defined life span with a beginning and an end.
3. Usually, the involvement of several departments and professionals.
4. Typically, doing something that has never been done before.
5. Specific time, cost, and performance requirements.
6. Temporary.
7. Nonroutine.
8. Triple constraints: scope-time-cost.

The Project Lifecycle

The project life cycle typically passes sequentially through four stages: defining, planning, executing, and delivering. The starting point begins the moment the project is given the go-ahead. Project effort starts slowly, builds to a peak, and then declines to delivery of the project to the customer.



1. Defining stage: Specifications of the project are defined; project objectives are established; teams are formed; major responsibilities are assigned.

2. Planning stage: The level of effort increases, and plans are developed to determine what the project will entail, when it will be scheduled, whom it will benefit, what quality level should be maintained, and what the budget will be.

3. Executing stage: A major portion of the project work takes place—both physical and mental. The physical product is produced (a bridge, a report, a software program). Time, cost, and specification measures are used for control.

4. Closing stage: Closing includes three activities: delivering the project product tothe customer, redeploying project resources, and post-project review. Delivery of the project might include customer training and transferring documents.

Project Scope

Defining the project scope sets the stage for developing a project plan. The primary purpose is to define as clearly as possible the deliverable(s) for the end user and to focus project plans.Clearly, project scope is the keystone interlocking all elements of a project plan.To ensure that scope definition is complete, you may wish to use the following checklist:

1. Project objective
2. Deliverables
3. Milestones
4. Technical requirements
5. Limits and exclusions
6. Reviews with customer

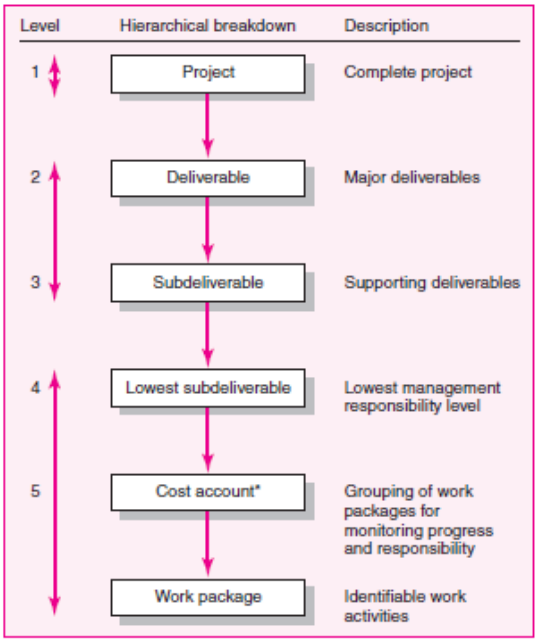
Scope Agreement

The purpose of the scoping agreement is to define expectations of the project's work, responsibility, and accountability. In a scoping agreement, the doer and the receiver agree on the scope of the doer's work.The agreement is a crisp 250-word statement (easily read in one minute). The scoping agreement is the beginning or definition phase of the management process and gives a firm point of reference for project efforts.

Work Breakdown Structure

Once the scope and deliverables have been identified, the work of the project can be successively subdivided into smaller and smaller work elements. The outcome of this hierarchical process is called the work breakdown structure (WBS). The WBS is a map of the project. Use of WBS helps to assure project managers that all products and work elements are identified, to integrate the project with the current organization, and to establish a basis for control.

The lowest level of the WBS is called a work package. Work packages are shortduration tasks that have a definite start and stop point, consume resources, and represent cost. Each work package is a control point.



Organization Breakdown Structure

The WBS is used to link the organizational units responsible for performing the work. In practice, the outcome of this process is the organization breakdown structure (OBS). The OBS depicts how the firm has organized to discharge work responsibility. The purposes of the OBS are to provide a framework to summarize organization unit work performance, identify organization units responsible for work packages, and tie the organizational unit to cost control accounts.

Responsibility Matrices

In many cases, the size and scope of the project do not warrant an elaborate WBS or OBS. One tool that is widely used by project managers and task force leaders of small projects is the responsibility matrix (RM). The RM (sometimes called a linear responsibility chart) summarizes the tasks to be accomplished and who is responsible for what on a project. In its simplest form an RM consists of a chart listing all the project activities and the participants responsible for each activity.

From Work Package To Network

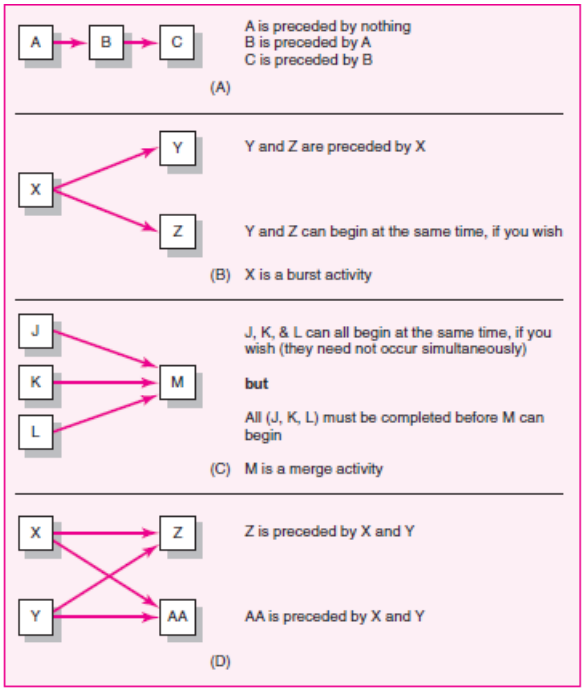
Project networks are developed from the WBS. The project network is a visual flow diagram of the sequence, interrelationships, and dependencies of all the activities that must be accomplished to complete the project.

Terminology

Activity. An *activity* is an element of the project that requires time. It may or may not require resources. Typically an activity consumes time—either while people work or while people wait. Activities usually represent one or more tasks from a work package.
Merge activity. This is an activity that has more than one activity immediately preceding it (more than one dependency arrow flowing to it).
Parallel activities. These are activities that can take place at the same time, if the manager wishes. However, the manager may choose to have parallel activities *not* occur simultaneously.
Path. A sequence of connected, dependent activities.
Critical path. When this term is used, it means the path(s) with the longest duration through the network; if an activity on the path is delayed, the Project is delayed the same amount of time.
Event. This term is used to represent a point in time when an activity is startedor completed. It does not consume time.
Burst activity. This activity has more than one activity immediately following it (more than one dependency arrow flowing from it).

Two Approaches

The two approaches used to develop project networks are known as **activity-onnode (AON)** and **activity-on-arrow (AOA).** *Both methods use two building blocks— the arrow and the node.* Their names derive from the fact that the former uses a node to depict an activity, while the second uses an arrow to depict an activity.



Basic Rules to Follow in Developing Project Networks

The following eight rules apply in general when developing a project network:

1. Networks flow typically from left to right.
2. An activity cannot begin until all preceding connected activities have been completed.
3. Arrows on networks indicate precedence and flow. Arrows can cross over each other.
4. Each activity should have a unique identification number.
5. An activity identification number must be larger than that of any activities that precede it.
6. Looping is not allowed (in other words, recycling through a set of activities cannot take place).
7. Conditional statements are not allowed (that is, this type of statement should not appear: If successful, do something; if not, do nothing).
8. Experience suggests that when there are multiple starts, a common start node can be used to indicate a clear project beginning on the network. Similarly, a single project end node can be used to indicate a clear ending.

Network Computation Process

Drawing the project network places the activities in the right sequence for computing start and finish times of activities. Activity time estimates are taken from the task times in the work package and added to the network.

1.Forward Pass—Earliest Times

The forward pass starts with the first project activity(ies) and traces each path (chain of sequential activities) through the network to the last Project activity(ies). As you trace along the path, you *add* the activity times. The longest path denotes the project completion time for the plan and is called the critical
path (CP).

The forward pass requires that you remember just three things when computing early activity times:
1. You *add* activity times along each path in the network (ES + DUR = EF).
2. You carry the early finish (EF) to the next activity where it becomes its early start (ES), *unless*
3. The next succeeding activity is a *merge* activity. In this case you select the *largest* early finish number (EF) of *all* its immediate predecessor activities.

2.Backward Pass-Latest Times

The backward pass starts with the last project activity(ies) on the network. You trace backward on each path *subtracting* activity times to find the late start (LS) and finish times (LF) for each activity. Before the backward pass can be computed, the late finish for the last project activity(ies) must be selected.
The backward pass is similar to the forward pass; you need to remember three things:
1.You *subtract* activity times along each path starting with the project end activity (LF-DUR =LS).
2. You carry the LS to the next preceding activity to establish its LF, *unless*
3. The next preceding activity is a *burst* activity; in this case you select the *smallest* LS of all its immediate successor activities to establish its LF.

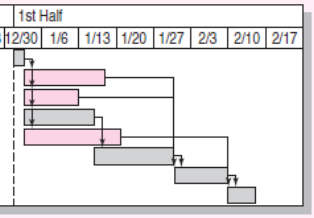
Slack

Total slack or float for an activity is simply the difference between the LS and ES (LS-ES = SL) or between LF and EF (LF-EF=SL).

Gantt Chart

Bar charts are popular because they present an easy-to-understand, clear picture on a time-scaled horizon. They are used during planning, resource scheduling, and status reporting. The format is a two-dimensional representation of the project schedule, with activities down the rows and time across the horizontal axis.

ID	Duration	Task Name	Start	Finish	Late Start	Late Finish	Free Slack	Total Slack
1	2 days	Order review	Tue 1/1	Wed 1/2	Tue 1/1	Wed 1/2	0 days	0 days
2	15 days	Order vendor parts	Thu 1/3	Thu 1/17	Wed 1/16	Wed 1/30	13 days	13 days
3	10 days	Produce other standard parts	Thu 1/3	Sat 1/12	Mon 1/21	Wed 1/30	18 days	18 days
4	13 days	Design custom parts	Thu 1/3	Tue 1/15	Thu 1/3	Tue 1/15	0 days	0 days
5	18 days	Software development	Thu 1/3	Sun 1/20	Wed 1/23	Sat 2/9	20 days	20 days
6	15 days	Manufacture custom hardware	Wed 1/16	Wed 1/30	Wed 1/16	Wed 1/30	0 days	0 days
7	10 days	Assemble	Thu 1/31	Sat 2/9	Thu 1/31	Sat 2/9	0 days	0 days
8	5 days	Test	Sun 2/10	Thu 2/14	Sun 2/10	Thu 2/14	0 days	0 days



PROJECT APPLICATION

Subject

State theater tickets are sold at a low price. For this reason, tickets are consumed away instantly. Most of people do not join the theater after buying the ticket therefore theater halls remain empty. We will prevent this situation thanks to the application that we will develop in this project. In this application we will enable people to sell their tickets quickly and reliably.

There is a lot of interest in theater in Eskişehir. People become victims because tickets are sold out quickly. The project aims to eliminate this grievance, increase the number of people attending the theater and fill the empty theater halls. At the same time, people can get some of the money they pay for their tickets.

Related Research

As a result of our research, we saw that there are many applications for ticket sales. But these applications are usually created for concerts and private theaters. State theaters do not take place in the applications. We aim to make a local application in order to meet this deficiency in Eskişehir in our Project more specifically, an application for theaters with ticket prices of 7.50 and 10 TL. In general, tickets on the website are sold at high prices. Most tickets do not have cancellation. Cancellation sites cancel the tickets at high prices. Most mobile applications on the Internet are written using program languages such as JAVA. These mobile applications have two different operating systems. These are iOS and Android. According to the requirements, the producers can offer the application either paid or free. And these mobile applications are developed and improved with updates over time.

We thought to make our project through a mobile application. This mobile app has two sides. The first of these is to ensure that people who want to cancel their tickets at the last minute can cancel their tickets without any financial loss. On the other hand, it is able to provide services to people looking for last minute tickets. People who want to cancel your ticket through this application will be able to sell your ticket. People may sell their tickets at a price that does not exceed the initial sale price or may not charge. And if a person is looking for tickets for a theater, they will be able to advertise through the application and receive notification through the application when there are idle tickets.

Scope

In our project, we will take local theater as a constraint. And this will be limited to those in Eskişehir in local theaters. Theaters with an additional ticket price of more than 10 TL will not be included in the application.

While creating this application, the Ministry of Culture and Tourism responsible for Eskişehir theaters and Eskişehir City Theaters will be given the necessary information and data sharing will be made and the monthly theater program, which theaters will be the intensity of demand information will be shared.

SCOPING AGREEMENT

Project Name: Ticket Sales Application For State Theater

Project Managers: Ahmet, Gözde, Melike

I. Identification of general information.

Most of people do not join the theater after buying the ticket therefore theater halls remain empty. We will prevent this situation thanks to the mobil application that we will develop in this project. In this application we will enable people to sell their tickets quickly and reliably. Software, interfaces and data base of application will create by another person (Ayberk). [60 words]

II. Description of task and what is to follow the task.

This mobile app has two sides. The first of these is to ensure that people who want to cancel their tickets at the last minute can cancel their tickets without any financial loss. On the other hand, it is able to provide services to people looking for last minute tickets.Application can be used within 66 days.[56 words]

III. Description of doer and receiver responsibilities.

Doers will provide a mobil application for receivers to sell their tickets safely and quickly.Receivers may sell their tickets at a price that does not exceed the initial sale price or may not charge. And if a person is looking for tickets for a theater, they will be able to advertise through the application and receive notification through the application when there are idle tickets.[65 words]

IV. Description of background and supporting information.

Project managers are industrial engineer and can manage a project successfully. Other team member Ayberk is an industrial engineer and has enough experience and information for softwares.[27 words]

Scoping Agreement is consists of 208 words. It can read easily.

TASK LIST

Project Name and Number: Ticket Sales Application For State Theater, #15
Project Managers: Ahmet, Gözde, Melike

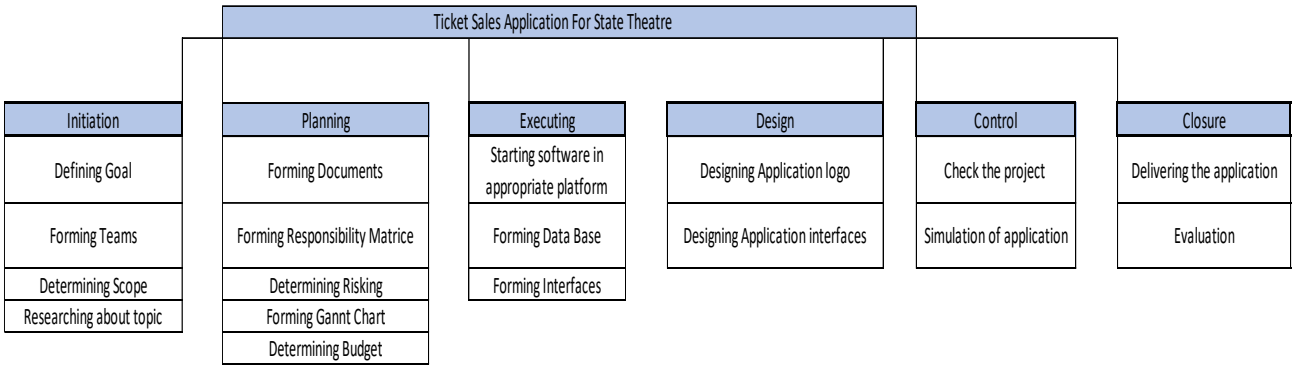
TASK	Effort	Milestones
Defining Goal	1	
Determining Scope	1	
Researching about topic	7	
Forming Documents	3	
Forming Responsibility Matrice	1	
Determining Risking	1	
Forming Gannt Chart	1	
Determining Budget	2	
Starting software in appropriate platform	21	M
Forming Data Base	6	M
Forming Interfaces	4	
Designing Application logo	3	
Designing Application interfaces	4	
Check the project	2	
Simulation of application	5	
Delivering the application	10	M
Evaluation	4	

Responsibility Matrices

[1]

RESPONSIBILITY MATRICES				
Project Name and Number:	Ticket Sales Application For State Theatre; #15			
Project Manager:				
	People			
Tasks	Melike	Ahmet	Gözde	Ayberk
Defining Goal	R	R	R	
Determining Scope	R	R	R	
Researching about topic		S	R	
Forming Documents	R	R		
Forming Responsibility Matrice			R	
Determining Risking		R		
Forming Gannt Chart	R			
Determining Budget	R	S		
Starting software in appropriate platform			S	R
Forming Data Base		S		R
Forming Interfaces	S			R
Designing Application logo	R		S	
Designing Application interfaces		S		R
Check the project	S	R		
Simulation of application	R			
Delivering the application		S	R	
Evaluation			R	

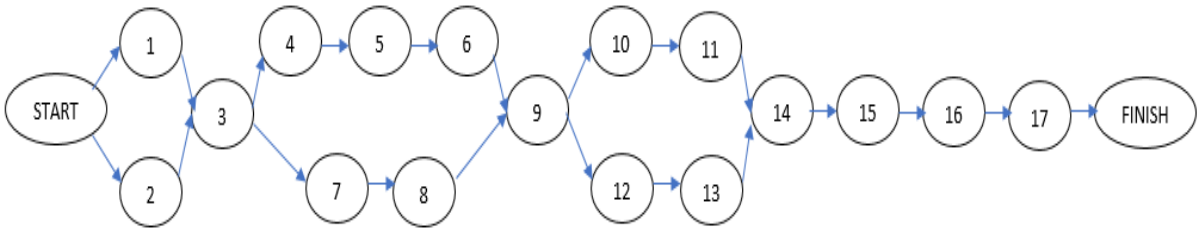
WBS Of Project



[1] R= Responsible/ S= Support

Network Diagram

Activity #	Description	Predecessors	Duration(Days)
1	Defining Goal	-	1
2	Determining Scope	-	1
3	Researching about topic	1,2	7
4	Forming Documents	3	3
5	Forming Responsibility Matrice	4	1
6	Forming Gantt Chart	5	1
7	Determining Risking	3	1
8	Determining Budget	7	2
9	Starting software in appropriate platform	6,8	21
10	Forming Data Base	9	6
11	Forming Interfaces	10	4
12	Designing Application logo	9	3
13	Designing Application interfaces	12	4
14	Check the project	11,13	2
15	Simulation of application	14	5
16	Delivering the application	15	10
17	Evaluation	16	4



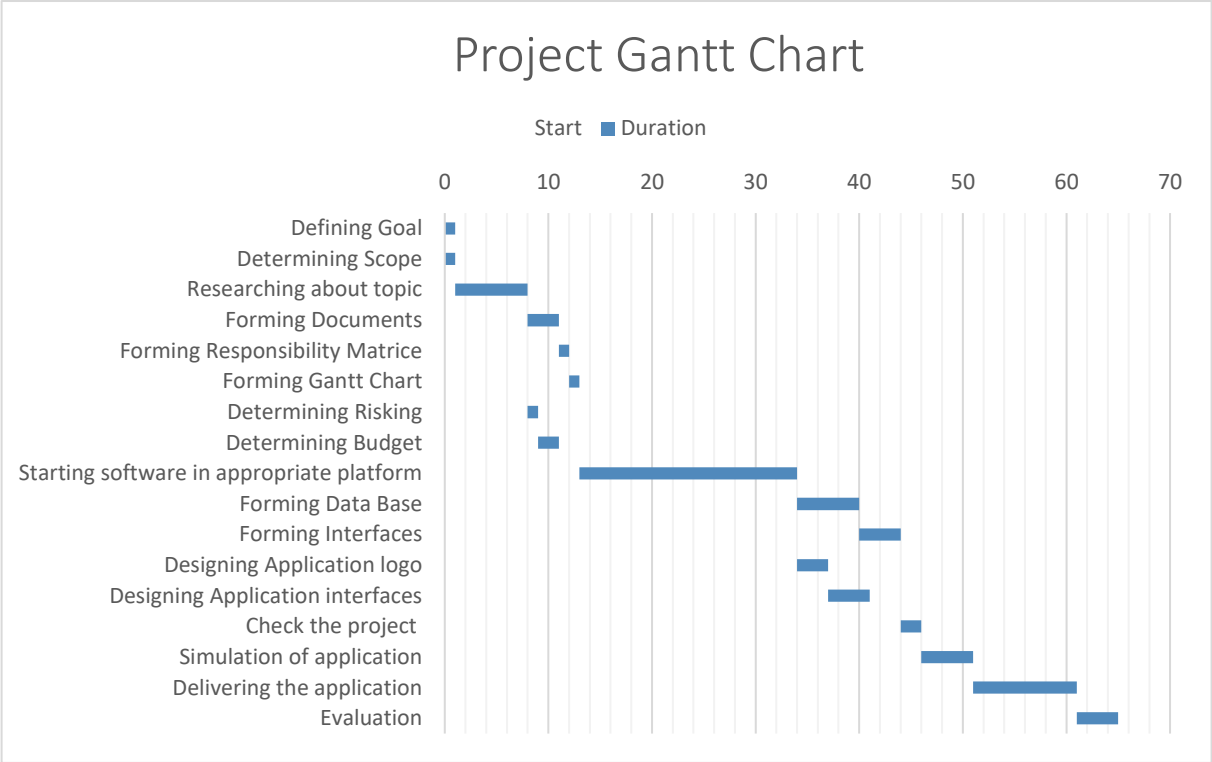
Activity #	Duration	ES	EF	LS	LF	Slack
1	1	0	1	0	1	0
2	1	0	1	0	1	0
3	7	1	8	1	8	0
4	3	8	11	8	11	0
5	1	11	12	11	12	0
6	1	12	13	12	13	0
7	1	8	9	10	11	2
8	2	9	11	11	13	2
9	21	13	34	13	34	0
10	6	34	40	34	40	0
11	4	40	44	40	44	0
12	3	34	37	37	40	3
13	4	37	41	40	44	3
14	2	44	46	44	46	0
15	5	46	51	46	51	0
16	10	51	61	51	61	0
17	4	61	65	61	65	0

Critical Path=1-2-3-4-5-6-9-10-11-14-15-16-17

Length=66

Gantt Chart

Activity	Start	Duration
Defining Goal	0	1
Determining Scope	0	1
Researching about topic	1	7
Forming Documents	8	3
Forming Responsibility Matrice	11	1
Forming Gantt Chart	12	1
Determining Risking	8	1
Determining Budget	9	2
Starting software in appropriate platform	13	21
Forming Data Base	34	6
Forming Interfaces	40	4
Designing Application logo	34	3
Designing Application interfaces	37	4
Check the project	44	2
Simulation of application	46	5
Delivering the application	51	10
Evaluation	61	4



Closure

At the end of the project, the accounting books were recorded and final reports were written and distributed, the project was uploaded to the iOS and android store and simulated approved to the target customers. The project did not end early or late as calculated. Just in time, so in 66 days. The budget limit of 35000 TL allocated to the project has not been exceeded and 31500 TL has been completed.

What we have learnt?

In this project, we have all observed how teamwork progresses. When starting the project, we experienced as a team a common goal, the limitations of this goal, and the literature search. And we set a common budget for that, in order to know our own boundaries, fortunately, our project was successful in all of these boundaries. We also received external support at some stages of the project, for example, ayberk helped us in writing and accounting. This was a different experience for us because none of us had any experience. In addition, we had interesting experiences in transferring the system that we established during the application phase to the computer environment, for example, we had the opportunity to mail with ios employees and they all helped us. And while we simulated our application to customers, we learned that you should definitely publish a demo before creating some things. We hope that the whole community will benefit from this application.

EXPENDITURES CHART

Project Name and Number: Ticket Sales Application For State Theater, #15
Project Managers: Ahmet, Gözde, Melike

Tasks	Labor Cost (TL)	Expenses (TL)
Taking Place in IOS Platform		8280
Taking Place in Android Platform		8280
User Management System (Social Login)		720
User Management System (Standart)		360
Local Database		2700
Camera Property		720
Advanced Security Properties		1080
Forming Interfaces	1000	
Designing Application interfaces	500	
Starting software in appropriate platform	3000	
Forming Data Base	2000	
In-App Payments Property		3240
Total	6500	25380
General Total	31800 TL	